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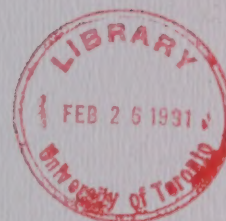
VOLUME: 292

DATE: Monday, February 18, 1991

BEFORE:

A. KOVEN Chairman

E. MARTEL Member



FOR HEARING UPDATES CALL (COLLECT CALLS ACCEPTED) (416) 963-1249

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ENVIRONMENTAL ASSESSMENT BOARD

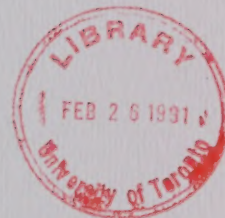
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of a Notice by the Honourable
Jim Bradley, Minister of the Environment,
requiring the Environmental Assessment
Board to hold a hearing with respect to a
Class Environmental Assessment (No.
NR-AA-30) of an undertaking by the Ministry
of Natural Resources for the activity of
Timber Management on Crown Lands in
Ontario.


Hearing held at the offices of the Ontario
Highway Transport Board, Britannica Building,
151 Bloor Street West, 10th Floor, Toronto,
Ontario, on Monday, February 18th, 1991,
commencing at 10:30 a.m.

VOLUME 292

BEFORE:

MRS. ANNE KOVEN
MR. ELIE MARTEL

Chairman
Member



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I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>JAMES F. BENDELL,</u> <u>JOHN MIDDLETON,</u> <u>ROGER SUFFLING,</u> Affirmed	52033
Direct Examination by Mr. Lindgren	52034

I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
1711	Witness statement re: FFT Panel No. 9.	52027
1712A	CV of Dr. Jim Bendell re: FFT Panel No. 9.	52028
1712B	CV of Dr. John Middleton re: FFT Panel No. 9.	52028
1712C	CV of Dr. Roger Suffling re: FFT Panel No. 9.	52028
1713A	Source Book Volume 1 re: FFT Panel No. 9.	52029
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1713C	Supplementary Source Book re: Panel No. 9.	52029
1714	MNR ESSA Document entitled: A Plan of Research into the Effects of Timber Management on Wildlife dated January 29, 1991.	52029
1715	37-page document entitled: Ecoregions of Ontario by Wickware and Rubek dated 1989.	52030
1716A	Willamette National Forest System final Environmental Impact Statement.	52031
1716B	One-page memo dated July 10, 1990 re: Willamette National Forest System.	52032

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<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
1716C	Three-page memo entitled: New Perspectives for managing the National forest system.	52032
1716D	Maps pertaining to Final Environmental Assessment Report on Willamette National Forest.	52032
1717A	Interrogatory Question Nos: OFIA 1, 10 and 11; OFAH 1, 31, 38, 40, 42, 43 and 47; and MNR 4, 9, 12, 19, 23, 29, 31, 36, and 39.	52033
1717B	One-page errata sheet.	52033
1718A	Hand-drawn diagram depicting four trees prepared by Dr. Bendell.	52054
1718B	Hand-drawn diagram depicting animals, plants, water and so forth prepared by Dr. Bendell.	52054
1719A	Two letters from Ms. Paton Lodge Lindsay to EA Board and Mr. Pascoe's one-page response, including four pages of transcript excerpts.	52089
1719B	Two-page letter from Ms. Seaborn to Ms. Paton Lodge Lindsay and 14 pages of attachments.	52089
1720 (reserved)	Hard copies of slides to be used by Dr. Bendell in oral evidence.	52090
1721	Three-page excerpt from an article by Richard Plochmann entitled: The Forest of Central Europe, a Changing View.	52110

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<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
1722	Two-page photocopy of a pamphlet prepared by Ontario Hydro entitled: Computer Assistance for Route and Site Selection dated December 3, 1989.	52110
1723	12-page package of hard copies of overheads to be used by Dr. Middleton during oral evidence.	52111
1724	GIS forest classification map prepared by Ontario Hydro based on 1987 Landsat imagery at a scale of 1:25,000.	52112

1 ---Upon commencing at 10:30 a.m.

2 MADAM CHAIR: Good morning. Please be
3 seated.

4 Good morning, Mr. Lindgren.

5 MR. LINDGREN: Good morning, Madam Chair
6 and Mr. Martel.

7 MADAM CHAIR: Good morning, gentlemen.

8 MR. LINDGREN: We're ready to proceed
9 with our Panel 9 evidence on management for wildlife
10 and biodiversity, and I would like to just introduce
11 you to the panel. Starting from my left we have Dr.
12 Jim Bendell, Dr. John Middleton and Dr. Roger Suffling.

13 And, Madam Chair, as usual we have a
14 number of exhibits that we have to mark before we
15 proceed. The first exhibit is the Panel 9 witness
16 statement and I'm not sure where we are in terms of the
17 number.

18 MADAM CHAIR: That will be Exhibit 1711.

19 MR. LINDGREN: Thank you.

20 ---EXHIBIT NO. 1711: Witness statement re: FFT Panel
21 No. 9.

22 MR. LINDGREN: And as the next exhibit I
23 would ask that the CVs of the witnesses be marked as
24 1712A, B and C with A being Dr. Bendell's CV, B
25 consisting of Dr. Middleton's CV, and C Dr. Roger

1 Suffling's CV.

2 ---EXHIBIT NO. 1712A: CV of Dr. Jim Bendell re: FFT
Panel No. 9.

3 ---EXHIBIT NO. 1712B: CV of Dr. John Middleton re: FFT
4 Panel No. 9.

5 ---EXHIBIT NO. 1712C: CV of Dr. Roger Suffling re: FFT
6 Panel No. 9.

7 MR. LINDGREN: And we have extra copies
8 of those CVs if that's necessary.

9 MADAM CHAIR: Thank you, Mr. Lindgren.

10 MR. LINDGREN: Next, Madam Chair, I would
11 like to have the source books marked and there are
12 three source books. I would ask that they be marked as
13 1713A, B and C.

14 They are Source Books Volume 1, Volume 2
15 and a Supplementary Source Book.

16 MADAM CHAIR: Okay. Let's hold on here.
17 All right. How do you want to do this, Mr. Lindgren?

18 MR. LINDGREN: I propose that Volume 1
19 Source Book be marked as Exhibit 1713A.

20 MADAM CHAIR: We have it Volume 1A and B.

21 MR. LINDGREN: It was filed as a single
22 volume.

23 MADAM CHAIR: All right. Okay, so you
24 want this to be Exhibit 1713A?

25 MR. LINDGREN: Yes, please.

1 MR. LINDGREN: I would propose that
2 Volume 2 be marked as 1713B, and the Supplementary
3 Source Book should be marked as Exhibit 1713C.

4 ---EXHIBIT NO. 1713A: Source Book Volume 1 re: FFT
5 Panel No. 9.

6
7 ---EXHIBIT NO. 1713B: Source Book Volume 2 re: FFT
8 Panel No. 9.

9
10 ---EXHIBIT NO. 1713C: Supplementary Source Book re:
11 Panel No. 9.

12
13 MR. LINDGREN: As the next exhibit I
14 would like to have marked an MNR ESSA Document
15 entitled: A Plan of Research into the Effects of Timber
16 Management on Wildlife, and this is dated January 29th,
17 1991.

18 I take it that's Exhibit 1714?

19 MADAM CHAIR: Yes, it is, Mr. Lindgren.

20 ---EXHIBIT NO. 1714: MNR ESSA Document entitled: A
21 Plan of Research into the Effects
22 of Timber Management on Wildlife
dated January 29, 1991.

23 MR. LINDGREN. It looks like this.
24 (indicating)

25 The next exhibit, Madam Chair, is a

1 document by Wickware and Rubek dated 1989 and it is
2 entitled: Ecoregions of Ontario and it consists of a
3 37-page document and various maps which are attached.

4 MADAM CHAIR: That will be Exhibit 1715.

5 MR. LINDGREN: Thank you.

6 ---EXHIBIT NO. 1715: 37-page document entitled:
7 Ecoregions of Ontario by
Wickware and Rubek dated 1989.

8 MR. LINDGREN: And the next exhibit,
9 Madam Chair, is a collection of excerpts from the
10 Willamette National Forest Plan and the excerpt that
11 we're filing consists of the summary of the final
12 Environmental Impact Statement and two attachments.

13 The first attachment is a one-page memo
14 dated July 10th, 1990 and the second attachment is a
15 three-page document entitled: New Perspectives for
16 Managing the National Forest System.

17 And, Madam Chair, on your desk we have
18 also placed the maps that accompany the final
19 Environmental Impact Statement and this has been filed
20 as together as one entire package.

21 And, Madam Chair, you have the only maps
22 that are available but all the parties have the
23 Environmental Impact Statement and the attachments.

24 MADAM CHAIR: All right. Let's get this
25 straight.

1 MR. LINDGREN: That's the entire package.

2 MADAM CHAIR: The maps are in here?

3 MR. LINDGREN: That's correct.

4 MADAM CHAIR: Everything is in this
5 package?

6 MR. LINDGREN: That's correct. And I
7 would ask that we mark the whole bundle as 1716.

8 MS. BLASTORAH: Mr. Lindgren, would it be
9 possible to mark each piece A, B and C just for easy
10 reference.

11 MR. LINDGREN: Certainly. A, I would
12 propose, be the final Environmental Impact Statement,
13 Exhibit 1716B will be the one-page memo, and Exhibit
14 1716C will be the three-page memo entitled: New
15 Perspectives.

16 MS. BLASTORAH: Thank you.

17 MR. LINDGREN: And the maps should
18 perhaps be marked as 1716D, Madam Chair.

19 MADAM CHAIR: And how many maps are
20 there, Mr. Lindgren?

21 MR. LINDGREN: I believe there is eight
22 maps in the package.

23 ---EXHIBIT NO. 1716A: Willamette National Forest
24 System final Environmental Impact
Statement.

25

1 ---EXHIBIT NO. 1716B: One-page memo dated July 10,
2 1990 re: Willamette National
 Forest System.

3 ---EXHIBIT NO. 1716C: Three-page memo entitled: New
 Perspectives for managing the
4 National forest system.

5 ---EXHIBIT NO. 1716D: Maps pertaining to Final
6 Environmental Assessment Report
 on Willamette National Forest.

7 MR. LINDGREN: And finally, Madam Chair,
8 I would like to file a package of interrogatories, in
9 fact I've already placed them on your desk, and I've
10 distributed them to the parties and they consist of the
11 following interrogatories.

12 MADAM CHAIR: Okay. What does it look
13 like?

14 MR. LINDGREN: Or perhaps I didn't place
15 it on your desk.

16 MADAM CHAIR: They might be in this pile.

17 MR. LINDGREN: No, no. (handed)

18 MADAM CHAIR: Thank you, Mr. Lindgren.

19 MR. LINDGREN: There's an errata sheet
20 that goes with it.

21 MADAM CHAIR: Thank you.

22 MR. CASSIDY: Mr. Lindgren, would you
23 happen to have an extra copy of that set?

24 MR. LINDGREN: No, I do not. One was
25 provided to you though.

1 And this interrogatory package, Madam
2 Chair, consists of OFIA No. 1, 10 and 11; and OFAH
3 Interrogatories No. 1, 31, 38, 40, 42, 43 and 47, and
4 from the MNR Interrogatories No. 4, No. 9, No. 12, No.
5 19, No. 23, No. 29, No. 31, No. 36, and No. 39.

6 MADAM CHAIR: That will be Exhibit 1717.

7 ---EXHIBIT NO. 1717A: Interrogatory Question Nos: OFIA
8 1, 10 and 11; OFAH 1, 31, 38, 40,
9 42, 43 and 47; and MNR 4, 9, 12,
 19, 23, 29, 31, 36, and 39.

10 MR. LINDGREN: I would ask that that be
11 marked as 1717A because there is a one-page errata
12 sheet that should accompany that and that I would ask
13 be marked as 1717B.

14 ---EXHIBIT NO. 1717B: One-page errata sheet.

15 MR. LINDGREN: And those are all the
16 exhibits we intend to file at this time, although there
17 will be a few other exhibits introduced through the
18 course of the testimony.

19 And, Madam Chair, I would ask at this
20 time that you affirm the witnesses to give evidence
21 before the Board.

22 JAMES F. BENDELL,
23 JOHN MIDDLETON,
 ROGER SUFFLING, Affirmed

24 MR. LINDGREN: I would like to commence,
25 Madam Chair, by very briefly reviewing the CVs for each

1 of these witnesses and I will start with Dr. Jim
2 Bendell.

3 DIRECT EXAMINATION BY MR. LINDGREN:

4 Q. Now, Dr. Bendell, I understand that
5 you have an undergraduate degree and a Ph.D. in
6 zoology?

7 DR. BENDELL: A. Correct.

8 Q. And what was the subject matter of
9 your Ph.D. thesis?

10 A. Population dynamics. of wildlife.

11 MR. LINDGREN: And, Madam Chair, I should
12 indicate that I'm reviewing his CV which has been
13 marked as Exhibit 1712A.

14 Q. And, Dr. Bendell, I understand that
15 since 1972 you have taught in the Faculty of Forestry
16 at the University of Toronto; is that correct?

17 DR. BENDELL: A. Correct.

18 Q. And you've been cross-appointed to
19 the graduate Department of Biology?

20 A. Correct.

21 Q. Now, on page 1 of your CV you
22 indicate that during the years 1972 to '75 you were the
23 Kortright Professor of Forest Wildlife Management. Can
24 you briefly explaining what that entailed?

25 A. Well, the position that was

1 established in forestry was from Kortright money and,
2 accordingly, it became the Kortright Professorship.
3 After the period of support ended, then the University
4 of Toronto financed the chair or the position.

5 Q. And can you briefly describe the
6 courses in both departments that you teach that have
7 some relevance to the subject matter of your testimony?

8 A. Well, very quickly, for zoology and
9 that's a matter of directing and participating in
10 graduate student research in the field of zoology, and
11 the Faculty of Forestry it's teaching forest wildlife
12 biology and management, forest ecology, helping in the
13 direction of our graduate studies course in forestry,
14 and directing my own graduate students in zoological
15 forest related research.

16 Q. And do we find a list of those theses
17 that you have supervised on pages 3 to 6 of your CV?

18 A. Should do. Should do, yes. Some of
19 them anyhow. I think that CV includes perhaps the last
20 six or 10 years.

21 Q. That's correct. And on page 2 of
22 your CV we see a list of a number of journals that you
23 act as a reviewer for. Is that a fairly current or
24 comprehensive list?

25 A. Correct.

1 Q. And I understand that since 1979
2 you've conducted wildlife research in the Gogama area,
3 and can you indicate very briefly the nature of your
4 work and can you also explain why you're working in
5 Gogama as opposed to some other area?

6 A. In Gogama, very briefly, it's
7 population dynamics of forest wildlife. The choice of
8 Gogama was to do the work where the every day practice
9 of forestry and wildlife management, wildlife use is
10 going on.

11 Q. And on pages 7 and following in your
12 CV we see a list of publications that you have authored
13 or co-authored. Is it fair to say that most of those
14 publications relate to your work in the Gogama area?

15 A. That's correct. Now, may I just
16 make --

17 Q. Oh, sorry.

18 A. May I say a wee bit and say that I've
19 been at wildlife work since 1946 starting in Algonquin
20 Park and then in the 50s, through 60s, early 70s
21 wildlife work, population dynamics in British Columbia
22 at the University of B.C. which I think is scratched
23 off on the CV. So I just want to make that expansion
24 and remarks.

25 Q. Thank you. And is it fair to say

1 that the work that you have just described focuses on
2 the impacts of human and natural disturbance such as
3 harvesting or plantation management on wildlife
4 populations within the boreal forest?

5 A. Yes.

6 MR. LINDGREN: And, Madam Chair, those
7 are all the questions I propose to put to Dr. Bendell
8 about his qualifications, and I would move that Dr.
9 Bendell be qualified as a wildlife biologist and forest
10 ecologist with particular expertise in the impacts of
11 human and natural disturbance on wildlife population
12 dynamics.

13 MR. MARTEL: Could you repeat that last
14 portion, please?

15 MR. LINDGREN: We're moving that he be
16 qualified with particular expertise in the impacts of
17 human and natural disturbance on wildlife population
18 dynamics.

19 MADAM CHAIR: Are there any objections to
20 Dr. Bendell being qualified in this way.

21 (no response)

22 Fine.

23 MR. LINDGREN: Next, Madam Chair, I would
24 like to very quickly review the CV of Dr. Middleton
25 which is Exhibit 1712B.

1 Q. And, Dr. Middleton, I understand that
2 you hold undergraduate, graduate and post-graduate
3 degrees in biology and ecology?

4 DR. MIDDLETON: A. That's correct.

5 Q. And can you briefly describe the
6 subject matter of your graduate and Ph.D. thesis?

7 A. They were both looking at human
8 impact on a landscape scale of ecosystems, particularly
9 the implications for fragmentation by farmland in
10 Ontario.

11 Q. And I understand that you're
12 currently teaching at Brock University in the Institute
13 Urban and Environmental Studies and you too have been
14 cross-appointed to the Department of Biological
15 Sciences; is that correct?

16 A. That's correct. My primary
17 appointment is in the Institute which is in the Faculty
18 of Social Sciences. I'm adjunct professor in the
19 Department of Biological Science which is in the
20 Faculty of Natural Sciences.

21 Q. And can you briefly describe the
22 courses that you teach which have relevance to the
23 subject matter of your testimony?

24 A. At the introductory level I teach
25 ecology and environmental studies; at upper

1 undergraduate level I teach courses in conservation
2 planning, in environmental ethics, environmental impact
3 assessment, and I supervise both graduate and
4 undergraduate research theses in all of those fields.

5 Q. And what do you mean by the term
6 conservation planning?

7 A. It's looking at the scientific and
8 both social and natural scientific basis for managing
9 human impacts in such a way that ecosystems are viable
10 into the indefinite future.

11 Q. In terms of your research work, is it
12 fair to say that you've studied the general principles
13 of disturbance including human disturbance on
14 ecosystems throughout a number of continents?

15 A. That's correct. I have -- my current
16 work and my past work has been in Ontario. I have also
17 worked for a number of years in universities in
18 Tanzania in east Africa and recently similar sorts of
19 studies in Argentina in South America.

20 Q. And did those South American studies
21 deal with issues such as forest clearance?

22 A. Not directly forest clearance, but
23 management of the ecosystems in which forest was a
24 component part.

25 Q. Is it also fair to say that your

1 research has involved the study of impacts of
2 disturbance on diverse groups of organisms ranging from
3 vertebrates to microorganisms?

4 A. That's correct. I've worked with
5 plants and animals, amongst the animals both
6 vertebrates and invertebrates, and with the
7 decomposition system as well in plant bacteria and so
8 on, the goal in each case trying to get at ecosystem
9 level conclusions rather than conclusions about any
10 kind of group of organism.

11 Q. And is it also fair to say that your
12 research has primarily focused on human dominated
13 landscape such as forests or farmlands?

14 A. That's correct. Since my interest is
15 in the factors of disturbance in the ecosystems, the
16 experimental method in most cases has been to take
17 human disturbances as the disturbance of interest.

18 Q. I have a couple of questions for you
19 arising out of page 2 of your CV. Under the heading
20 Professional Service on page 2 we see that you're an
21 appointed member to the Ecological and Environmental
22 Advisory Committee of the Regional Municipality of
23 Niagara, and we also see an indication that you're the
24 Chair of the Natural Areas Subcommittee of that group.

25 And can you very briefly describe what

1 that work entails?

2 A. This is a body which is appointed by
3 the regional councillors of the Region of Niagara to
4 give it advice on all matters having to do with
5 environments and ecology, particularly land use
6 planning in my case.

7 The Natural Areas Subcommittee looks at
8 things like natural area policies for the region and
9 how this would impact and different ways of developing
10 planning principles for Niagara.

11 I am not currently the Chair of that
12 subcommittee, although I'm still a member of that
13 committee.

14 Q. Thank you. And finally, on page 3 of
15 your CV we see an indication that you're a founding
16 member of the Canadian Society for Landscape Ecology
17 and Management and you're also a member of the
18 International Association for Landscape Ecology.

19 Can you briefly describe what landscape
20 ecology entails?

21 A. It is a discipline which tries to
22 combine the insights both of conventional land use
23 planning and with ecological theory and practice to get
24 a synthesis which allows the human impacts on a large
25 scale, many tens of square kilometres for example and

1 upwards, to be integrated into better land use plans,
2 both from the human perspective and the ecological
3 perspective.

4 MR. LINDGREN: Again, Madam Chair, those
5 are the questions I propose to put to Dr. Middleton,
6 and on the basis of his evidence and his CV, I would
7 move that Dr. Middleton be qualified as a biologist and
8 landscape ecologist with particular expertise in
9 conservation planning and landscape management and
10 planning.

11 MADAM CHAIR: Could you repeat that, Mr.
12 Lindgren?

13 MR. LINDGREN: We're moving that Dr.
14 Middleton be qualified as a biologist and landscape
15 ecologist with particular expertise in conservation
16 planning and landscape management and planning.

17 MADAM CHAIR: And landscape management
18 and planning?

19 MR. LINDGREN: That's correct.

20 MADAM CHAIR: Any objections to Dr.
21 Middleton being so qualified?

22 (no response)

23 MR. LINDGREN: Thank you.

24 Q. And one follow-up question, Dr.
25 Middleton. I understand that you have been involved

1 with the MNR ESSA Other Wildlife Workshop and, in
2 particular, I understand that you have attended the
3 initial workshop in May, 1990 and the Environmental
4 Effects Workshop in June, 1990.

5 DR. MIDDLETON: A. That's correct.

6 Q. Okay. Thank you.

7 MR. LINDGREN: And we'll return to that
8 subject in a few moments, Madam Chair.

9 Q. Then turning to Dr. Suffling's CV
10 which is marked as Exhibit 1712C, I understand, Dr.
11 Suffling, that your undergraduate and Ph.D. thesis are
12 in the areas of zoology and biology; is that correct?

13 DR. SUFFLING: A. Yes, that's correct.

14 Q. And what was the subject matter of
15 your Ph.D. thesis?

16 A. I looked at power lines that were
17 being managed by Ontario Hydro with respect to the use
18 of herbicides and the effect of brush killing
19 herbicides on ecosystems.

20 Q. Now, I understand that since 1975 you
21 have taught at the University of Waterloo in the school
22 of Urban and Regional Planning; is that correct?

23 A. Yes.

24 Q. Can you briefly describe the courses
25 that you teach or have taught that relate to the

1 subject matter of your evidence?

2 A. I teach an introductory course in
3 applied ecology, I teach a third year course in
4 conservation resource management, I teach graduate
5 courses in environmental assessment and in the area of
6 landscape ecology.

7 Q. And in the course of your employment
8 have you had opportunity to supervise student theses
9 that have any bearing on the subject matter of your
10 testimony?

11 A. Yes, I did.

12 Q. And we find these on --

13 A. You won't find those in the CV, but
14 I've had about 10 or 12 graduate students and
15 approximately two thirds of them have worked on
16 landscape ecology related topics or forest ecology
17 related topics.

18 Q. I think we may in fact find that list
19 on page 15 of your CV.

20 A. Oh. Yes, that's correct. There's a
21 longer version I usually use.

22 Q. Now, on page 20 of your CV you list
23 your consultant activities. I understand that you have
24 worked as a consultant for the Ministry of Natural
25 Resources and for Ontario Hydro and for Acres.

1 And can you briefly indicate the nature
2 of that work and can you indicate how many
3 environmental assessments you've been involved with?

4 A. Okay. I wasn't actually employed as
5 a consultant by Acres, I was an employee of the company
6 when I worked there.

7 In terms of work for the Ontario Ministry
8 of Natural Resources, we have undertaken work on
9 vegetation mapping, particularly with respect to forest
10 communities.

11 In terms of work with Ontario Hydro, I
12 have worked on the management of power lines, on
13 planning of power lines, the management in particular
14 involves brush control and use of herbicides in making
15 sure that the lines don't get snagged by large trees,
16 and also the use of cover crops.

17 And the third category was with Acres;
18 correct?

19 Q. (nodding affirmatively)

20 A. We worked on a number of
21 environmental assessments including large projects in
22 the mid-north, forestry development projects in
23 northwestern Ontario, power stations, various
24 industrial projects.

25 Q. And in the course of that consulting

1 work, how many environmental assessments have you been
2 involved with?

3 A. Altogether I've been involved in
4 about 50. The larger ones were in the north, in the
5 mid-north. There were a great many small ones that
6 were around the Regional Municipality of North Bay
7 because I was serving on the EAAC committee then.

8 Q. Okay, thank you. And I understand
9 that since 1975 you have undertaken research in
10 northwestern Ontario regarding the landscape approach
11 and the impacts of disturbance on the boreal landscape;
12 is that correct?

13 A. That's correct.

14 Q. And that some of that work has been
15 cited in your witness statement and has been included
16 in the source book; is that correct?

17 A. Yes.

18 Q. And I understand that you also wrote
19 a report commissioned by the Fahlgren Commission on the
20 relationship between forest management and the trapping
21 industry?

22 A. That's correct.

23 Q. And on pages 2 to 12 of your CV we
24 see a list of your publications, and rather than
25 reviewing each of them, I would like to perhaps

1 summarize them, if I can.

2 Is it fair to say that your publications
3 generally deal with four topics; firstly, the ecology
4 of boreal forests?

5 A. Yes.

6 Q. Is that yes to that?

7 A. Yes.

8 Q. The effects of fire and climate
9 change on the boreal landscape?

10 A. That's correct.

11 Q. The use of herbicide for vegetation
12 management purposes?

13 A. Yes.

14 Q. And risk assessment and societal
15 value of ecosystems?

16 A. Yes.

17 Q. Okay. I understand that you too have
18 been involved in the MNR ESSA Other Wildlife Workshop
19 and that you participated in the Environmental Effects
20 Workshop in June of 1990?

21 A. That's correct.

22 MR. LINDGREN: Madam Chair, those are my
23 questions for Dr. Suffling and we would move that he be
24 qualified as a forest ecologist and environmental
25 planner with particular expertise in landscape

1 management and planning.

2 MADAM CHAIR: Are there any objections to
3 Dr. Suffling being so qualified?

4 (no response)

5 Mr. Lindgren?

6 MR. LINDGREN: Thank you, Madam Chair.

7 We are going to commence with Dr. Jim
8 Bendells' evidence as is found in Chapter 1 of the
9 witness statement, and the witness statement has been
10 marked as Exhibit 1711.

11 And Dr. Bendell's evidence is entitled:
12 The Use of Featured Species by the Ontario Ministry of
13 Natural Resources in Habitat Management for Wildlife.

14 Q. And Dr. Bendell, if I could, can I
15 ask you to briefly outline the general themes of your
16 evidence?

17 DR. BENDELL: A. I would like to make a
18 statement to give you the highlights of what I'm about.
19 And, first of all, I'd like to say that I'm very
20 privileged to appear here and with all humility I hope
21 that I can help in what we're trying to do.

22 And, like you, I want healthy wildlife
23 and forests and sustained use; more specifically, as
24 much as these highlights will be specific, I want the
25 definition of wildlife broadened to include all wild

1 organisms, and I think if we're to manage successfully
2 we must do this so that we can find out how organisms
3 function in the forest, to make the forest, make
4 themselves in a sense, and then out of that how
5 organisms produce and yield from the forest.

6 I think that a crucial step in this
7 process is inventory and in simple expression it comes
8 down to, what species are in the forest, where are
9 they, how many are there there, and how long do these
10 persist. And then the next step is the provision of
11 the habitat needs of these organisms so we can have
12 then the health of a forest, its use that I mentioned.

13 Another main concern I have is that we
14 have adequate preserves in our forests, and I think
15 this is terribly important, detect elements of the
16 forest, organisms say, before they're lost. I think we
17 need a starting point, a natural starting point for
18 meaningful study and research and we certainly need
19 these preserves, like the Chapleau Game Preserve say,
20 as check areas so that we can compare undisturbed
21 forest more or less natural forest with managed forest
22 so we can see the effect of our intervention and
23 management.

24 Then another point I would like to put on
25 the table is that we need much more research in our

1 work - and I suppose what could you expect from a chap
2 who spent all his life in research - but I do think we
3 need research into methods of inventory, we need to
4 know more about what makes populations of wildlife
5 tick, we need certainly more information on how various
6 species of animals, organisms, function in the forest
7 and we need more -- when I say function, I mean where
8 they get their whereforall for life and what they do in
9 their living and so on and so forth and all this
10 contributing to forest growth and yield and so on.

11 We also need more research on
12 interactions and that, of course, includes the effects
13 of management and the impact of forestry practices,
14 let's say spraying insecticides, information of that
15 sort and effects on wildlife.

16 Another main point quickly then is I
17 think there's a need for improved planning and we need
18 to better define targets in our planning, we need much
19 better auditing as to where we stand in reaching those
20 targets.

21 I think we need a much greater
22 appreciation of the values that are in our forest land
23 and that includes aesthetics. And then we certainly
24 need to use the old Hackney'd phrase in true fashion,
25 integrated resource management. And then one small but

1 I think important point is we need much better access
2 by walking trails so that we can use the resources of
3 our forest.

4 Then finally to come to the matter that's
5 documented at hand, in my witness statement I pay
6 particular attention to the concept of featured species
7 management and I'm prepared to talk about that and, as
8 you read, my point of view is that it's not really very
9 helpful, it's invalid as a method of telling us how to
10 go about managing wildlife.

11 Q. And when you say invalid, do you mean
12 it's invalid at the provincial scale or some other
13 scale?

14 A. In the sense that we are using it I
15 think now and in Ministry policy, that with applying
16 the moose habitat guidelines say now in the boreal
17 forest we will do as the policy says for our wildlife.

18 I think that certainly is -- and what
19 Ministry wants to do with its wildlife I think is
20 commendable as you read the policy. I don't think the
21 featured species management will get us there.

22 Q. Well, in particular, I understand
23 that you're referring to the MNR policy objective found
24 on page 6 of your witness statement where we find an
25 indication that:

1 "An objective of the Ministry is to
2 ensure that no species declines on
3 a provincial scale because of forest
4 management activity."

5 And in your opinion, can the use of moose
6 as a featured species achieve that stated policy
7 objective?

8 A. Well, no, because I don't think moose
9 and moose management is going to be representative
10 enough of the various species of wildlife we have in
11 our forests, their abundance in various parts of the
12 forest, or their distribution throughout the province.

13 Q. You refer at the outset of your
14 evidence to the need to broaden the definition of
15 wildlife. Why is that necessary in your view?

16 A. Well, in my highlights here I think I
17 touched on that. Wildlife are a product of an
18 assemblage, of an ecosystem, interactive system if you
19 like, and if we focus attention just on certain
20 elements of that we will never really get to understand
21 the whole operation.

22 The forest is like an engine, if you just
23 pay attention let's say to the shiny ornament which is
24 probably our moose then we're never going to see how
25 the engine works and get adequate management.

1 And may I pop up and just try to make
2 this point with my little transfer illustration?

3 Q. Certainly.

4 A. Madam Chair, I'm sorry, I should have
5 directed it to you. I think these cute little pictures
6 perhaps summarize the problem.

7 If someone says: What is a forest, if
8 you ask a forester, that's a forest, it consists of a
9 number of trees and I can speak of this with first-hand
10 knowledge. Or if you ask a wildlifer, if his
11 prediction is grouse, he'll say it's a group of grouse,
12 or it's a stand for moose or something you see.

13 And I think we all more or less suffer
14 from this malady of tunnel vision, but in reality and
15 if we're going to get anywhere, then our forest is
16 really an assemblage of interrelated organisms.

17 And what I've done here is to put our
18 forest into perspective. No question, they are an
19 important part of the assembly, but now we also
20 recognize the importance of water as in this glass of
21 water, nutrients as in this salt shaker, bacteria say
22 microorganisms, plant system as mushrooms, songbirds,
23 small mammals as appearing here, and they're all
24 interconnected in a web - I'm sure you've heard that
25 analogy before - a web of interconnections which then

1 result in functions and make the forest grow, hopefully
2 in a healthy way that we can use to our advantage.

3 Q. Dr. Bendell, I know that you spent
4 some time doing that art work there. Would you have
5 any objection if we marked those as exhibits?

6 A. No, I'd be honored. It's really an
7 exhibition.

8 MR. LINDGREN: Perhaps they can be marked
9 as A and B, I'm not sure what the number is.

10 MADAM CHAIR: That will be -- Exhibit
11 1718A will be the hand-drawn diagram of four trees, and
12 Exhibit 1718B will be the hand-drawn diagram showing
13 animals, plants, water and so forth.

14 MR. LINDGREN: Thank you, Madam Chair.

15 ---EXHIBIT NO. 1718A: Hand-drawn diagram depicting four
16 trees prepared by Dr. Bendell.

17 ---EXHIBIT NO. 1718B: Hand-drawn diagram depicting
18 animals, plants, water and so
forth prepared by Dr. Bendell.

19 MR. LINDGREN: Q. And, Dr. Bendell, FFT
20 term and condition 25(i) defines wildlife as all
21 non-domesticated organisms including plants, animals
22 fungi and microorganisms. Would you support that
23 definition of wildlife?

24 DR. BENDELL: A. Yes.

25 Q. Now, turning to the issue of featured

1 species management, I think it's fair to say that the
2 MNR evidence in this hearing has suggested that if
3 moose are managed properly through timber management
4 plans then the habitat needs of between 70 to 80 per
5 cent of all vertebrates in Ontario will be met. Do you
6 agree with that proposition?

7 A. No.

8 Q. And why not?

9 A. Well again, as I've mentioned, I
10 don't think that moose are going to be representative
11 of all the other organisms that are in the forest, and
12 narrowing that now to the ones that traditionally get
13 attention, the ones I'm most familiar with, that's the
14 terrestrial vertebrates, I don't think it holds even
15 for those which are conventionally considered as
16 wildlife in the less than broad definition.

17 Q. Now, at Volume 283 page 50621 of the
18 transcript - and it's not necessary to pull that out,
19 Madam Chair - but at that point in the hearing, Dr.
20 Bendell, Mr. Chris Maser testified that he had concerns
21 about single species management and that he indicated
22 that in his experience he has not found a single
23 species that would guarantee or take care of 70 to 80
24 per cent of the other species.

25 Do you have similar concerns about single

1 species management and, in your opinion, is it likely
2 that we'll ever find a single species that can take
3 care of 70 to 80 per cent of the other wildlife?

4 A. Well, I agree of course with what Dr.
5 Maser said and, as a simple answer to that, yes, he's
6 correct in his statement.

7 And then in terms of ever finding a
8 featured species, if for example the only animal in a
9 given habitat that you're concerned about is a given
10 species then it becomes the featured species, and at
11 that scale then featured species management I'm sure
12 would work.

13 Q. But would it take care of the other
14 70 to 80 per cent?

15 A. Well, as I said, if that was the only
16 animal in the habitat, but bearing in mind that we're
17 talking about vast area of our forests, that's rarely
18 going to be a circumstance.

19 Q. In your opinion --

20 MR. MARTEL: What would -- in your
21 opinion then you must go well beyond moose?

22 DR. BENDELL: Right.

23 MR. MARTEL: And I don't know if I'm
24 shortcutting where you're going to, but what would you
25 do to ensure not 70 or 80 per cent but in an attempt to

1 protect all the wildlife that is out there; what type
2 of system would you put in place?

3 DR. BENDELL: Well, it's a big job and
4 it's a difficult job, I mean, I don't think we need to
5 fool ourselves on that point, but I would certainly
6 start with a good inventory both of the wildlife
7 species we have and their habitats, and then within
8 that inventory, within that inventory I would begin to
9 look for associations that would allow me then to see
10 if I can do it in a simpler and direct fashion by
11 selecting species that represented truly a group of
12 other species.

13 MR. LINDGREN: Mr. Martel, this is a
14 subject that I will return to in a few moments.

15 Q. Dr. Bendell, in your opinion is it
16 appropriate to manage habitat for one or two or three
17 featured species when the land base supports or could
18 support at least 309 vertebrates and thousands of other
19 wildlife species?

20 DR. BENDELL: A. No, it's not, but
21 that's a very simple answer because what management we
22 do depends upon what the client wants, and if the
23 client -- you know what I'm going to say, if the client
24 wants one or two or three species, then management can
25 be directed that way.

1 But I personally wouldn't like to see it
2 because I think that the forest has far greater riches
3 and should be handled on that basis, on a broader
4 basis.

5 Q. Now, you've mentioned a few moments
6 ago that in your opinion featured species management is
7 invalid as a concept. In your opinion, is there a role
8 for featured species management at the local level,
9 could you ever directly manage for moose on a given
10 parcel of land?

11 A. I think so. I mean -- and I suppose
12 the ultimate example of that - if this is what you're
13 getting at and, you know, please ask other aspects of
14 your question because, you know, the way I reflect in
15 my mind what you have in yours may not be exactly what
16 we want - but the English grouse moors, the English
17 grouse moors come to mind and by a very rigorous
18 process of managing heather, relentless elimination of
19 predators, fertilizing heather, they can produce single
20 crops of red deer and red grouse that, you know, I
21 don't believe we can match anywhere in North America.

22 And there's no question about it that
23 here they're directing their -- see what I'm getting
24 at. Does that answer your question?

25 Q. I think so.

1 MR. MARTEL: Well, let's clarify. You're
2 saying that in certain places you could use a species--

3 DR. BENDELL: Yes.

4 MR. MARTEL: --for a specific return.

5 DR. BENDELL: Certainly, certainly.

6 MR. MARTEL: If that's the return you
7 want in that area.

8 DR. BENDELL: That's the management.

9 MR. MARTEL: But next door it might be
10 something totally different, it might be marten?

11 DR. BENDELL: Correct.

12 MR. MARTEL: Some different habitat
13 requirement.

14 DR. BENDELL: Correct.

15 MR. MARTEL: And if I follow you then,
16 you're saying you'd have to do it -- if you're going
17 to do it that way, you would have to go patch by patch,
18 species by species if you really want to manage for
19 everything that's there?

20 DR. BENDELL: Yes. Yes, that's
21 essentially correct. And you'd also have to recognize
22 that patches have influence on one another, so it's not
23 that simple to clearly step from the grouse patch to
24 the marten patch is what I'm saying.

25 MR. MARTEL: Yes. But I'm saying it's

1 just that sort of task.

2 DR. BENDELL: But that's the idea, yes.

3 MR. LINDGREN: And again, Mr. Martel, not
4 to hold you in suspense, but this is a subject matter
5 that Dr. Middleton will be discussing in some detail.

6 Q. Now, Dr. Bendell, on page 8 of the
7 witness statement you indicate that in your opinion the
8 moose is not a good representative species of boreal
9 wildlife. Are you here to propose a more
10 representative species?

11 DR. BENDELL: A. Well, as I've already
12 said, I think that what we have to do is to look at our
13 inventory and then from that I would certainly think a
14 way to go would be to look and to list various species
15 and see what groupings were there, and then from those
16 groupings try to see if we could get, say 10, 20, 30,
17 40 organisms, species that would be indicative of a
18 larger assemblage.

19 And this would help, I think, in the
20 featured species approach, it would also help in this
21 problem of inventory which troubles us in terms of
22 keeping long-term records which is a very important
23 part of inventory. I'm all for simplification if it
24 works.

25 Q. Can I ask you specifically whether or

1 not using moose, deer, pileated woodpeckers or marten,
2 either individually or collectively, would they be
3 representative and secure habitat for all wildlife
4 species in the forest?

5 A. Well, we'll put the deer aside
6 because we're talking truly boreal and the deer is not
7 a boreal animal, so we're now talking moose, pileated
8 woodpecker and marten.

9 I would say that is moving in the right
10 direction, but I would still say the three of them
11 would not be representative enough to qualify as a
12 collective -- acceptable collective group of featured
13 species.

14 Q. I would like to move directly to
15 your --

16 MR. MARTEL: Can we stop there, because
17 again I just want to get this -- because if we're going
18 to move to that, we're now -- the Ministry is looking
19 at featured species, I think one of the parties is
20 looking at adding a couple of species which are the
21 pileated woodpecker and the marten, you say the deer
22 really doesn't belong.

23 How big a list -- we have to start
24 somewhere--

25 DR. BENDELL: Right.

1 MR. MARTEL: --Dr. Bendell, and my
2 colleague and I think about this occasionally over the
3 past three years, how big a list, if I were to ask you
4 to provide a list for us of what you would look at so
5 that we can as close humanly as possible make a
6 decision which is going to protect the wildlife out
7 there, how big would your list be.

8 DR. BENDELL: That's a very good
9 question, and this is some of the material we're
10 searching in our research. How big an area do you
11 need, how many do you need of these areas, and how many
12 should you count.

13 Well, let me try to focus that or make
14 that a little bit more -- what's involved a bit more
15 acceptable. I do believe there are patterns in nature
16 and I think we're going to hear that in terms of our
17 landscape ecology, okay, so we can boil the province
18 down I think quite satisfactorily into what we do with
19 it, ecoregions, ecosections and so on, and I think --
20 my thinking at the moment is perhaps ecosection or
21 perhaps smaller is a kind of area we're talking about,
22 right.

23 Now, within such an area, which means
24 sampling doesn't have to be done over the entire
25 province - the principles will apply over the entire

1 province, but the actual work can be done on a much
2 smaller area - I haven't a clue how many you would have
3 to do but I do feel we can -- you know what I'm talking
4 about, simplify in a rationale, accurate fashion from
5 what we know already about the patterns of nature.

6 But out of the top of my head I would say
7 a hundred, a hundred, 200, say in that ballpark, and I
8 would sprinkle the representative forms all through
9 life forms, plants, invertebrates, vertebrates,
10 microorganisms and so on, you see.

11 MR. LINDGREN: Q. Dr. Middleton, if I
12 could, perhaps we can fast forward this to --

13 MR. MARTEL: Can you hang on a minute.

14 MR. LINDGREN: Go ahead.

15 MR. MARTEL: You're saying 100 to 200.

16 DR. BENDELL: Species.

17 MR. MARTEL: Species.

18 DR. BENDELL: Right.

19 MR. MARTEL: Into ecosections?

20 DR. BENDELL: Yes, into a relatively
21 small part of the province.

22 MR. MARTEL: Small part of the province.
23 How long would it take to do that?

24 DR. BENDELL: Well, now we're talk about
25 techniques of censusing. I would hope, you know, for

1 some of the microorganisms which are very abundant and
2 wide spread, a few scoops - I don't want to trivialize
3 this, and this is also a very big issue - but you can
4 sample soil bacteria and so on and fungi fairly
5 quickly, you see.

6 On the other hand for larger forms, like
7 someone said rare birds, you might have to spend much
8 longer and you must be there in the springtime when the
9 bird are singing in order to do your sampling and so on
10 and so forth. But I honestly believe it can be done.

11 DR. LINDGREN: Thank you. As I've
12 indicated earlier, Mr. Martel, this touches on some of
13 the substance of Dr. Middleton's evidence. I would
14 like to ask him about one or two questions at this
15 time.

16 Q. Dr. Middleton, is it possible to
17 directly monitor and manage all species of wildlife in
18 the province as FFT has defined wildlife?

19 DR. MIDDLETON: A. As we've defined
20 wildlife as all living organisms, the answer is no,
21 strictly impossible on a practical level because we're
22 talking about tens of thousands of species.

23 Q. And how would the landscape
24 management approach advocated by FFT overcome that
25 difficulty? Is it necessary for the landscape

1 management approach to devise lists of species to be
2 monitored and managed?

3 A. No, it is not depended on that. The
4 strategy that we are putting forward, as Dr. Bendell
5 has pointed out, is a two-level strategy and it will
6 certainly incorporate whatever information is available
7 at the individual species level, so every single bit of
8 information we have from that level is valuable and
9 helps, but to get around the problem that it is
10 strictly impossible to do that for all species, or even
11 a tiny proportion of all species, it advocates going
12 from a -- supplementing that with a top down look at
13 things by way of the requirements for living of the
14 other species, the idea being that by maintaining a
15 landscape in such a form that it resembles the original
16 landscape before we started changing it by our timber
17 management and other activities, by maintaining that
18 landscape we have our best first attempt to maintain
19 the conditions for life and, thus, species of all
20 groups that live there, whether or not we know all the
21 details of their life to begin with.

22 Q. Now, in your evidence you refer to
23 Strategy 1 and Strategy 2. Can you briefly describe
24 this point, what each strategy entails?

25 A. Certainly. I'm sure we'll get into

1 the details later on, but briefly Strategy 1 is to take
2 a landscape perspective, to have the tools available
3 for, first of all, describing the landscape in terms of
4 units of stands and larger and describing also what we
5 do to that, and setting some constraints on what we do
6 to it in such a way that its conditions are not
7 irreversibly changed by timber management activities.

8 That is supplemented by what we have
9 called Strategy 2, which I'll explain in more detail
10 later, but which is basically to supplement the
11 landscape scale information with whatever information
12 we have available about individual species or groups of
13 species, trying to guard against, for example, the
14 problem that the landscape scale management may allow
15 some species to fall through the cracks and also to
16 acknowledge that to have that first stage work we have
17 to have some monitoring and things which we can used
18 for adjusting our management into the future.

19 So the two levels just in a few words of
20 a landscape approach and a species approach integrating
21 hopefully in that sort of a way.

22 Thank you, Dr. Middleton.

23 MR. LINDGREN: And we'll return to that
24 obviously, Madam Chair, when we get to Dr. Middleton's
25 evidence.

1 Q. Dr. Bendell, if I could, I would like
2 to refer you to page 8 of your witness statement and
3 there you set out approximately 10 general arguments
4 against featured species approach and in paragraph No.
5 1 you set out a quotation from Jack Ward Thomas.

6 Can you please explain why you cited Dr.
7 Thomas and can you indicate whether his comments are
8 relevant to the Ontario practice of featured species?

9 DR. BENDELL: A. Well, Dr. Thomas is the
10 dean of prescribing habitat for wildlife and if you're
11 familiar with the literature and so on and so forth and
12 scientific meetings, he's the person that talks about
13 wildlife and landscape and how their needs can be met,
14 how they can be managed by providing this or that or
15 what must be left in the landscape if given wildlife,
16 say, are to be disturbed or protected -- disturbed as
17 little as possible or protected.

18 So he is the source, if you wish, or
19 acknowledged authority in this area, amongst other
20 people as well. And so here we have him saying this
21 about the featured species approach.

22 Q. And he refers to elk as a species
23 with high socio-economic value. He goes on to indicate
24 that:

25 "Socio-economic or political criteria...

1 are not appropriate for selecting
2 ecological indicators."

3 In your opinion, can we substitute the
4 word moose for elk?

5 A. Yeah. Well, you could leave elk in
6 its place if you wish, but you could also substitute
7 moose because both are large deer that have broad
8 habitat requirements that range very widely over the
9 landscape, and it's inevitable then that they're going
10 to touch on a great variety of habitat.

11 But the point is, I think, is that it
12 doesn't follow that they're going to really look after
13 a great many other species that are also found in those
14 habitats, or represent many other species in those
15 habitats.

16 Q. Turning to your second argument
17 against featured species which is found on page 8, you
18 indicate that:

19 "The hypothesis that habitat good for
20 moose is good for many other species has
21 not been tested."

22 And you were asked in an interrogatory
23 from the Ministry of Natural Resources whether or not
24 that hypothesis has been tested in the work of Baker
25 and Euler which has been marked as Exhibit 433.

1 MR. LINDGREN: This is MNR Interrogatory
2 No. 12 and it's found on page 16 of the interrogatory
3 package, Madam Chair, which has been filed as Exhibit
4 1717A.

5 Q. And very briefly, Dr. Bendell, the
6 question was asked:

7 "Do the witnesses agree that the work of
8 Baker and Euler, 1989 is a general
9 evaluation of this hypothesis? If not,
10 why not?"

11 And answer is:

12 "No, the Baker and Euler document only
13 states the hypothesis without testing it
14 through the collection and analysis of
15 emperical data. Ongoing work by ESSA is
16 only now beginning to test this
17 hypothesis."

18 And stopping right there, in general
19 terms how could that hypothesis be tested?

20 DR. BENDELL: A. I think both Dr. Euler
21 and Baker have done excellent work in this
22 documentation. I think they themselves in it say that
23 it's a hypothesis, it's not been tested, it's a
24 hypothesis, that's the way they describe it, and a
25 hypothesis then stands that way, something to be

1 tested.

2 You asked me how it could be tested.

3 Well, in my own presentation here in my statement I try
4 to do that by saying: Okay, let's take the guidelines
5 then as we have them for moose and apply them to an
6 area where I have some knowledge of the wildlife in
7 that area and see if it gives us a square deal to all
8 the wildlife in the area, treats them appropriately --
9 let's say treats them fairly, not appropriately, fairly
10 in terms of what's in the various habitats that are
11 going to be managed for moose and, therefore,
12 presumably looking after the rest of the wildlife.

13 So that's I think a kind of test, and I'm
14 quite happy to follow that up in more detail as to what
15 I think would be included in that test, but I suppose
16 from -- the ideal way though is to design an
17 experiment. You have a hypothesis and you design an
18 experiment to test the hypothesis.

19 And you would take an area, let's say,
20 that was a natural area and you might select one that
21 naturally has a great diversity because of patches of
22 forest fire and so on and so forth, like one of our
23 preserves, and then we would take another area and
24 manage it for moose, and then we would see how the
25 moose fared and how the other species fared under that

1 circumstance versus the control or check area, which is
2 being managed, let's say, on a far different basis,
3 natural landscape patch basis.

4 Q. The answer to MNR Interrogatory No.
5 12 refers to FFT condition No. 87(a) which would
6 require the MNR to not only study species which benefit
7 from the application of the moose guidelines but to
8 also study the species which may be harmed by the
9 application of those guidelines. In your opinion, is
10 that a good idea?

11 A. I think so. Yes, I think so.

12 Q. And so you would support that term
13 and condition?

14 A. Yes, as a person who is interested in
15 the assemblage of organisms in the forest, certainly.

16 Q. In your opinion Dr. Bendell, is it
17 correct to include that logging enhances wildlife
18 habitat simply because moose or other popular species
19 happen or may happen to increase in abundance after
20 logging?

21 A. Well, I suppose it depends upon how
22 you define enhances. I come back again, if we make
23 value judgments and I think we must on our resources
24 and if we say we highly value moose and deer, then
25 where we have logged and produced unnatural populations

1 of moose and deer or man-made, let's put it that way,
2 populations of moose and deer, then that's enhanced
3 wildlife management, that's an enhancement.

4 But if you at the same time consider that
5 you've lost much more desirable items and so on,
6 habitats, then you would call it a -- it would be a
7 mistake, you'd say, it's been a detriment, it's been a
8 loss from the environmental bank.

9 Q. I would like to turn then to your
10 third argument against featured species which is found
11 on page 9, and there you indicate that:

12 "Provisions of habitat for moose may not
13 satisfy the needs of other species."

14 In your opinion, for example, do the
15 moose guidelines satisfy the habitat needs of small
16 mammals or amphibians?

17 A. No, I would say not. In my
18 experience, first of all, the guidelines don't mention
19 anything about things done to the forest for moose that
20 would be that important to small mammals, and then
21 specifically, our knowledge of small mammals shows that
22 they are very much dependent upon woody debris and dead
23 material, woody debris on the forest floor and since
24 this is not mentioned and often in forest management
25 practices woody debris is pushed to one side in the

1 planting process, treatment process, then I don't think
2 we're doing what we might do to consider -- even
3 consider the smaller mammals, and in turn the
4 advantages they might provide in the way the forest
5 grows, even to the advantage of tree production say.

6 Q. Now, FFT condition No. 30 effectively
7 would require the MNR to ensure that sufficient dead
8 and down woody material is left on site to provide
9 habitat and structural diversity. Are you in support
10 of that condition?

11 A. Yes.

12 Q. Pardon me?

13 A. Yes, mm-hmm.

14 Q. Thank you. Your fourth argument
15 against featured species is found on page 9 at the
16 bottom and it refers to the fact that we don't know the
17 habitat requirements of many wildlife.

18 Why is that significant in terms of
19 featured species management?

20 A. Well, the argument is - and in this
21 document by Euler and Baker - that various species have
22 these requirements which are obtained by managing for
23 moose and, in effect, some of these requirements I
24 think are just really not fully known.

25 And a simple example of that would be

1 that one would ascribe old growth mixed forest, say, as
2 an important ingredient for moose, it would also say
3 that was an important -- that was a provision for lynx,
4 say, or whatever, but in effect the lynx may need old
5 growth forest plus an additional habitat nearby which
6 isn't specified, say, in the guidelines. So that's the
7 kind of thing.

8 And the example I used in my testimony
9 here was the Ministry statement itself that while we
10 have a handle on marten habitat needs, which is old
11 growth forest, we have very little knowledge of the
12 configuration of old growth respecting younger growth
13 and patches in the forest, this landscape, which could
14 be important -- which could be needed by the animals.

15 So it's just not enough to get a lump of
16 old growth, you've got to talk about pattern of habitat
17 requirements. And, again, this is not addressed in the
18 moose guidelines.

19 Q. On page 10 you indicate that you
20 disagree with many of the habitat preferences stated by
21 Baker and Euler and you offer the ovenbird as an
22 example.

23 Can you explain that example and do you
24 have any other examples of where you might disagree
25 with the habitat preferences expressed in 433?

1 A. Well, I happen to argue with the
2 ovenbird in our own forests, and I know we get good
3 consistent populations of that bird in jack pine
4 forests that are less than -- far less than a hundred
5 hectares in size, this is also true in Algonquin Park,
6 and I think the literature -- I can cite numerous cases
7 where workers have found ovenbird populations in
8 smaller blocks of habitat.

9 There is nothing wrong with the idea of
10 area sensitive, but I mean it's important to be certain
11 and often what you have in the literature is a
12 reflection of where we stand at the present time and
13 what a given observer has observed under his
14 circumstance, and it may well be that with more
15 information and studies elsewhere these conditions of
16 what the animals need will be greatly modified.

17 Another point that just came to mind is
18 that in this same list in this document the argument is
19 made that the red-eyed vireo needs a block of forest
20 greater than a hundred hectares before it will
21 persist -- before we'll have that species to enjoy in
22 the forest. And here is a January, 1991 in the Journal
23 Life Management, this observer telling us he has
24 red-eyed vireo living happily in aspen forests one
25 hectare, one hectare in size and that's very small.

1 But I can believe it because we have
2 red-eyed vireo in our jack pine plantations wherever
3 there is a white birch, one mature white birch or one
4 mature aspen standing, suggesting that it's doesn't
5 need really that much area. Perhaps that might depend
6 on what's around, but nevertheless it makes it
7 difficult, you know, to really say what can we do with
8 this information that isn't that close to accuracy.

9 And then I would -- well, you know, to
10 summarize this, I can go more -- I went through four
11 other tables here of what various wildlife species need
12 and I would be perpared to discuss and modify and
13 reject something like 25 per cent of the examples as
14 I've done with the ovenbird and the red-eyed vireo.

15 For example, they put masked screw as
16 being abundant and masked screw is a very - masked
17 shrew, insectivore - a very important member of our
18 boreal forest, it's an insect eater and they have it as
19 preferring - they use the word prefer - early stages of
20 forest succession after logging and burning, say.
21 Well, in our case - and I think the literature too says
22 that they must prefer older growth, mossy, heavy mossy
23 deposition of growth on the forest floor and woody
24 debris which they use for protection and forage amongst
25 and so on.

1 Q. Your fifth argument against featured
2 species management is set out on pages 10 and 11. And
3 can you very briefly explain your comments that:

4 "An emphasis on moose or some other
5 featured species may lead to the loss of
6 habitat that is valuable to other
7 species."

8 A. Well, again, that's it, that if
9 you -- here we have a landscape and if we have only
10 moose there in mind we may be inclined to manage that
11 landscape, say, by timber practices that will enhance
12 the moose. And I think -- I'm sure you've heard all
13 this and what it takes to make a moose in the forest -
14 and Dr. Euler has gone to some length to say what would
15 be perfect moose habitat.

16 Well, I picked that up from his
17 presentation and I say: Well, that's great. Now,
18 let's apply that, you know, to my area which is I think
19 representative of a large chunk of the boreal forest.

20 And since Dr. Euler has very little use
21 for jack pine as a habitat for everything, and this is
22 a misconception because it represents our inadequate
23 inventory, then he doesn't mention this in the
24 prescription and, as a consequence then, you end up
25 with a landscape which certainly will enhance moose,

1 mostly likely anyway, but loses out on a lot of other
2 things which I think are very important.

3 So that's the way I've tried to develop
4 an argument and give actual data, as best I know, of
5 what's in that forest to support it.

6 Q. Your sixth argument against featured
7 species is set out on page 11 and relates to the
8 abundance of wildlife.

9 Now, as I understand it, Exhibit 433, the
10 Euler and Baker paper, purports to identify the
11 occurrence of species that might be found in moose
12 habitat if the featured species approach is used.

13 In your view, does that document mention
14 anything about the abundance of species, and in your
15 answer perhaps you can indicate why species abundance
16 is important?

17 A. Well, again that's -- well, the
18 document is deficient in that respect and I'm sure
19 everyone, given a moment's thought, will see that
20 abundance is crucial. Once you've got the species
21 identified, the next thing is how many are there,
22 that's the very next question you ask, and how many are
23 there is crucial, you know, to how well they're doing,
24 how they're evolving, what they're doing in the forest,
25 how we can use them.

1 I mean, obviously there's only one
2 Kirkland's warbler, there's no way we can do very much
3 at all with it except try to protect it and enhance it,
4 but if there's a thousand spruce grouse, then we can do
5 a variety of things with it. So that abundance is
6 terribly important.

7 Q. Your seventh argument relates to
8 wildlife distribution. And, again, can you indicate
9 why wildlife distribution may be important?

10 A. Well, again, with a moment's simple
11 reflection what is it, how many are there, and where is
12 it, and if someone tells me that the most wonderful
13 bird in the world is a penguin I would agree with them,
14 but in terms of them enjoying it, it doesn't help me
15 very much because they're all by and large in
16 Antarctica.

17 So I'm concerned about -- and wildlife,
18 as I've mentioned, have patterned the landscape and
19 where you go then to use or enjoy wildlife is going to
20 follow that pattern. And if that pattern is broken,
21 let's say an outfitter in Gogama is making a good
22 living out of harvesting black bears and for some
23 reason or another that black bear population declines
24 yet at the same time the black bears expand in
25 abundance, say, in Kenora much farther away, the other

1 end of the province, that doesn't help him.

2 Now, from the point of view of our
3 present policies with the Ministry, our black bears are
4 all righth because the loss in Gogama is balanced by the
5 increase in the west, so the provincial total hasn't
6 changed and that's good, that's a step in the
7 direction, but in terms of distribution it certainly
8 has and how the hunters or the naturalists or whatever
9 who enjoy black bear are concerned, now they have to go
10 to - you see what I'm getting at - they have to go to
11 Kenora in order to enjoy black bear.

12 So distribution is of obvious importance,
13 next to abundance and then, of course, there are all
14 sorts of implications for distribution, large scale,
15 small scale in the forest, the way the animal functions
16 which is tied into with how many there are and so on
17 and so forth.

18 Q. Well, you've used the black bear
19 example, I would like to use the moose example. The
20 Board has heard evidence that the Ontario moose
21 population is thriving at the provincial level so that
22 if moose happen to decline in one given area there may
23 be an increase in another area, so there is no overall
24 provincial impact.

25 In your opinion, can a local decline in

1 moose or bear have ecological or socio-economic
2 significance?

3 A. Well, certainly. I mean, these are
4 of consequence in that local area.

5 Q. In your opinion, should local
6 declines of any wildlife species be avoided?

7 A. Certainly.

8 Q. Argument No. 8 against the featured
9 species approach is found on page 12, and I would
10 simply ask you whether or not the provision of moose
11 habitat will necessarily ensure that other species will
12 occur and prosper within that habitat?

13 A. If you used the term other in its
14 broadest sense, of other species, it may well be that
15 other species which benefit with what is benefitting
16 moose they indeed will go along for the ride as it were
17 but, again, as we said before, I think a large number
18 of species will not have advantage because of the
19 focussing on the narrow tunnel vision of managing for
20 moose alone.

21 Q. This brings me to argument No. 8 or
22 No. 9 which is set out on page 13. There you indicate
23 that Exhibit 433 tends to deal with terrestrial
24 vertebrates.

25 Do you have concerns about that narrow

1 focus?

2 A. Well, of course, starting from the
3 top, I'm aware that we have to value species, I begin
4 there, but I still feel that to really understand and
5 to husband or to manage our forest correctly we have to
6 be concerned about the assemblage of organisms, how
7 they interact, how they function.

8 Q. You also indicate on page 13 that you
9 do not overstate the importance or difficulty of making
10 a complete inventory of wildlife in the province.

11 Now, with respect to the comment that we
12 need to inventory wildlife, as FFT defines it, are you
13 saying that the MNR must go out and count every bug,
14 every bird, every animal on every square inch of land
15 in Ontario?

16 A. No, because I think that what one
17 does is sample and, therefore, if there are, as I began
18 talking about this issue a little while ago, if there
19 are patterns in nature and things are put together in
20 an orderly fashion, as I believe they are, then I think
21 that one can do a little bit to investigate that
22 pattern and then from the results of sampling infer the
23 entire pattern or situation without having to go to
24 this extent.

25 And that I guess is much the basis of

1 what I think we can do with these inventories. At
2 least, you know, adequately enough to talk about
3 importance and where more attention has to be given and
4 so on, things of that sort.

5 Q. Your tenth and final argument against
6 featured species is also found on page 13. And can you
7 briefly explain what you mean by your statement that:

8 "The featured species approach treats all
9 species of wildlife equally without
10 emphasizing species of exceptional
11 value."

12 What did you mean by that?

13 A. Things are different, I suppose
14 that's the way to start, and we have an array of
15 wildlife species, they're different because -- and we
16 recognize that difference by calling them different
17 species, and that has all kinds of implications as to
18 the nature of that difference.

19 Then we ask, what does the difference do
20 and that difference can have - I'm sure the wildlife
21 doesn't think about it this way - but we have -- we as
22 humans of course have this ability to conceptualize way
23 beyond the very narrow restricted confines of elements
24 of nature. And I don't offer this philosophical vent,
25 but the idea is that we're the ones that can put value

1 on these things, and if you want an objective kind of
2 value to begin with - I guess to follow up on the
3 effect that wildlife are different - I think the idea
4 of a keystone species of wildlife is a good one because
5 part of these patterns in nature, it does turn out that
6 certain species, certain kinds of wildlife have far
7 more impact on the forest than other kinds, say, okay.

8 And currently there's a multi-million
9 dollar research program going on up in the Yukon to try
10 to demonstrate the importance of snow-shoed hare as a
11 keystone species, and some of this is very pretty and
12 it does look that this may be working this way.

13 So there's an example. I've cited other
14 examples of this, that in terms of function and
15 production and abundance and so on, which are
16 relatively objective observations, animals are
17 different, species have different properties.

18 But then beyond that, of course, the
19 other -- obviously what comes to mind is that we value
20 things differently because of the way we see the world
21 and the way we want to run our world, and I don't see
22 how we can escape that and, therefore, we want game
23 animals that are sporty and gamey, if you wish. And I
24 see no problem with that, we want furbearers because
25 their fur offers a desirable commodity, maybe to some

1 people anyway.

2 And that's what I'm getting at in saying
3 that there are ways of valuing species, and I think
4 that has to be recognized. And of course what the
5 Ministry does, quite legitimately so, is values moose,
6 deer and the big game species all over, and I think
7 that's been part and parcel of the tradition, and I see
8 no problem with that, but I think now we've got to move
9 beyond this type of attitude where a very narrow focus
10 has been directed to what people want from the forests.

11 Q. Now, when you say species of
12 exceptional value, are you referring to the wildlife
13 species requiring special monitoring and management
14 which are set out in FFT condition No. 27?

15 A. Yes. There's another category of
16 species I didn't mention there that indeed deserve
17 special attention and those are the ones that we deem
18 valuable, seem to be facing extinction, we want to keep
19 them around, so they're of different value, say, than
20 the ruffed grouse which -- or starling which literally
21 are coming out of our ears in that connection.

22 Q. I would like to start a discussion of
23 your Gogama research which is outlined on pages 14 to
24 19 of the witness statement. Perhaps we can begin by
25 asking you to briefly explain the hypothesis that you

1 use for this work, and can you briefly describe the
2 nature of your field work?

3 A. Well, again, in Gogama I'm interested
4 in things I talked about, species of wildlife that are
5 there, their abundance and, as much as I can determine,
6 why they are there and what they're doing.

7 So I have a pattern of forests in my
8 study area which consists of the pattern, the kinds of
9 forests that I mentioned, plus I can rely on the
10 literature, let's say, if I have to - which I would
11 rather not do - but in this case the black spruce
12 forest which we haven't spent much time on, but we have
13 these other -- three or four forests that are available
14 to us.

15 And then we have, against this landscape
16 that I know something about, we have this prescription
17 for the moose, the ideal prescription, and indeed this
18 is applied in this area because the moose is abundant
19 and it's an important wildlife species there.

20 So then I ask the question, knowing what
21 we know the various forests will produce from studying
22 them, being in those forests, what does that mean to
23 what the forest produces on the one hand where it's
24 managed almost exclusively for moose and timber; on the
25 other hand where it might be managed for other values

1 that I think are equally important to the moose. And
2 that's the comparison I made.

3 Q. How long have you been carrying out
4 that work and what types of habitat have you examined?

5 A. Well, conceptually I've been carrying
6 out that kind of work since about 1950, okay, and these
7 questions are not, you know, particular to Ontario.

8 In terms of our Gogama experience, we
9 began in '79 collecting data there. What was your
10 other question?

11 Q. I'm just wondering what types of
12 general habitat types did you look at in your Gogama
13 study?

14 A. Well, we're most familiar with jack
15 pine. The two main habitats as you'll see from your
16 ecoregions, there's the upland black spruce forest
17 which becomes mixed upland spruce, white pine, jack
18 pine, fir, balsam fir, and it's cut and burn, and then
19 on the flats there's a vast remarkable deep sandy
20 plain, this is a jack pine type forest in there,
21 beautiful patterns of this sort.

22 So what we can do then is look at the
23 jack pine forests in its various stages of growth and
24 we can look in the mixed forest as it is at the present
25 time, and we can talk about what those forests produce.

1 And what I do try to do is to show what
2 we miss if we ignore the jack pine, and by and large
3 those prescriptions, the jack pine is junk pine in a
4 sense, it's not really that important to producing
5 moose.

6 Now, if you'd like to --

7 MADAM CHAIR: Sorry, excuse me.

8 Dr. Bendell, has any of your research,
9 any of your studies been used by the Ministry of
10 Natural Resources in studying their various guidelines
11 along that --

12 DR. BENDELL: In a very limited way, I
13 think that would be a fair comment. Would you like to
14 see pictures of these habitats? Have we got time for
15 them?

16 MR. LINDGREN: Perhaps we should put that
17 over until after the lunch break, unless you think you
18 can do it very quickly.

19 DR. BENDELL: Very quickly I can show you
20 they are there. Whatever you decide.

21 MR. LINDGREN: I think we will wait,
22 Madam Chair. And Dr. Bendell has suggested that we
23 produce the slides to show the Board and the parties
24 the types of habitat that he was working with and, as a
25 consequence, the hard copies of these slides have not

1 yet been produced, but they will be produced at a later
2 point in time. There are I think only six slides and
3 perhaps we can review those after the lunch break.

4 MADAM CHAIR: All right. That's fine,
5 Mr. Lindgren. And I have just two small matters to
6 take us to lunch. I have a couple of things to make an
7 exhibit.

8 Well, the first message, I'm told by Mr.
9 Pascoe that we will not start on Thursday until 9:30,
10 everyone can take note of that and, secondly, I want to
11 enter two sets of documents as exhibits. The first
12 comprises 67 pages, and that will be Exhibit 1719.

13 Exhibit 1719 will be two letters from Ms.
14 Paton Lodge Lindsay to the Board and Mr. Pascoe's
15 one-page response, including four pages of transcript
16 excerpts to her.

17 Why don't we call that 1719A, and 1719B
18 consists of a two-page letter from Ms. Seaborn to Ms.
19 Lodge Lindsay and 14 pages of attachments.

20 ---EXHIBIT NO. 1719A: Two letters from Ms. Paton Lodge
21 Lindsay to EA Board and Mr.
22 Pascoe's one-page response,
including four pages of
transcript excerpts.

23 ---EXHIBIT NO. 1719B: Two-page letter from Ms. Seaborn
24 to Ms. Paton Lodge Lindsay and 14
pages of attachments.

25 MADAM CHAIR: Do you want to break for

1 lunch now, Mr. Lindgren?

2 MR. LINDGREN: Yes, please, Madam Chair.

3 MADAM CHAIR: We'll return at 1:30.

4 ---Luncheon recess at 12:00 p.m.

5 ---On resuming at 1:40 p.m.

6 MADAM CHAIR: Good afternoon. Please be
7 seated.

8 MR. LINDGREN: Madam Chair, prior to the
9 break Dr. Bendell was about to show his six slides
10 relating to his work in Gogama. Perhaps before we show
11 them we can reserve an exhibit number for those six
12 slides and we'll undertake to provide hard copies of
13 those slides.

14 MADAM CHAIR: That's Exhibit 1720.

15 MR. LINDGREN: Thank you.

16 ---EXHIBIT NO. 1720: Hard copies of slides to be used
17 (reserved) by Dr. Bendell in oral evidence.

18 MR. LINDGREN: And we'll provide a list
19 to accompany those slides to describe the contents.

20 DR. BENDELL: Well, I hope this might
21 introduce a bit more reality to the things we're
22 talking about. And just to make a couple of points,
23 what I see in the forest -- can you all see that? Can
24 you hear me?

25 This is where we do our work, halfway

1 between Sudbury and Timmins as indicated by the large
2 star. We work there year round and, as I say, we've
3 done that now for approximately 10 years.

4 MR. LINDGREN: Sorry to interrupt. We're
5 looking at slide No. 2.

6 MADAM CHAIR: Excuse me, Dr. Bendell,
7 your work in the Gogama area has been in association
8 with your research at the university?

9 DR. BENDELL: Right. But most of our
10 work of course is concentrated in the summertime when
11 we're free of classes at university.

12 Now, I talked about the different
13 habitats there that we've studied and the kind of
14 wildlife that live in them, and then we ask: What
15 would be the consequence to wildlife if we had this
16 kind of habitat as compared to another kind of habitat,
17 and so on and so forth.. So that this gives us units
18 on which we can build a landscape.

19 And this is a burn and this is an area
20 recovering now from the burn, it's been replanted in
21 jack pine by standard forestry practices and you're
22 looking at a board there with each of those squares
23 approximately a foot in height so you get some idea of
24 the height of the shrubs, and this is what I call burn
25 shrub, early shrub, early forest succession stage of

1 forestry regrowth, and I think in this area this will
2 probably grow back in another 50, 60 years into mostly
3 jack pine, it will probably do that if it wasn't
4 planted.

5 But anyhow, this is what I referred to as
6 the shrub habitat, and by and large this is an over
7 statement that this is excellent for moose, but in
8 terms of other wildlife it's virtually a desert. So
9 this is what I referred to in my statement as the shrub
10 habitat.

11 MR. LINDGREN: Q. This is slide No. 3.

12 A. Slide No. 3 then. So now we move
13 down the road a little bit onto Highway 560 onto a main
14 portion of the Chapleau plains, great sand flat and
15 here we have some of the finest jack pine growth I
16 think anywhere in the world and here we're looking at a
17 man-made plantation, almost pure jack pine, of
18 approximately 20 years of age and what you see there is
19 a yellow pole. It's a way we catch grouse with a noose
20 on the end of the pole and that's 16 feet long, so you
21 get an idea how big are the trees.

22 Now, in terms of moose this forest is
23 hardly used at all. Moose certainly -- and so on, go
24 through it, but nothing in the way that they will use
25 that shrubland, and yet this place has the highest

1 grouse density, spruce grouse density among anywhere in
2 the world, highest of varying hare density found I
3 think anywhere in our records and, in turn, lynx and
4 marten and so and so forth, and blueberries, also a
5 fine complement of songbirds, notably the hermit thrush
6 which, as far as I'm concerned, is the most beautiful
7 songbird in the world, so -- in terms of the way it
8 looks, but also the quality of its song.

9 So to me, while it doesn't offer much for
10 moose it has great richness for other wildlife, the
11 ones I have described.

12 Q. This is No. 4.

13 A. This is inside that same forest now
14 and here we have two chicks of spruce grouse that live
15 in this forest and this is part of our work where we
16 find them, count them, band them, measure their growth,
17 survival and so on.

18 Now, here's the later stage of jack pine
19 forest 10 kilometres, 15 kilometres east down Highway
20 560 from the last plantation. This is in the order of
21 45, 50 years of age. Now, again, this habitat is
22 relatively nothing for moose. Moose do walk through
23 it, use it a little bit, but from my point of view as
24 well as seeing moose it produces -- produce of lots of
25 blueberry, is has good bear population in it, say,

1 starting with some of the big things, but more than
2 that it has unbelievable numbers of small mammals;
3 namely, heather voles and masked shrews, more so than
4 any of the habitats I've showed you before.

5 So there are different habitats, they
6 have different wildlife potentials, you see, I guess
7 the point that I'm trying to make.

8 Now, let me go on a little bit longer in
9 terms of function. One of the problems we have in
10 forestry with pure plantations is that they're
11 vulnerable to insect, pest epidemic and not so long ago
12 we had an outbreak of the jack pine budworm and because
13 of that the Ministry in this area spent \$38-million
14 spraying pesticides to control the jack pine budworm.
15 Probably that's what we have to do because we want to
16 protect this, this eventually of course will be timber
17 in the mill.

18 However, what we have found in our work
19 is that these shrews respond very much to jack pine
20 budworm and they eat quantities of them and if we can
21 make them eat more in a variety of ways then maybe we
22 could stop jack pine budworm epidemics in these forests
23 before they start. So I just want to make that point
24 to you, which is part of what concerns us in the way
25 the forests are working and the consequences of that

1 process.

2 And to go on a bit more, our studies to
3 date suggest that the reason there are the number of
4 masked shrews in there that there are and what
5 determines and limits the number is the amount of
6 downed wood on the forest floor and you notice that
7 noticeably absent because this is a man-made forest.

8 And our contention is if there's more
9 downed wood, there would be more masked shrews there to
10 start with and less opportunity for an outbreak to get
11 started, which would cost as peanuts, which would solve
12 the problem of the budworm and make everyone I'm sure
13 much happier than they are at the present time.

14 Q. Dr. Bendell, before you go on, you've
15 indicated that the area was sprayed with pesticides.
16 Do you know which insecticide was actually used?

17 A. Oh, indeed. Do you want to go
18 through a list, fenitrothion, malathion, Matacil, and
19 DT, two concentrations, DT-20 and DT-30.

20 Q. And were those experimental or
21 operational sprays?

22 A. Both.

23 Q. Both.

24 A. And if you wanted to take time on
25 that, I can go on on that subject.

1 MR. MARTEL: Could you -- before you go
2 on, did you say how much was spent in that area?

3 DR. BENDELL: \$38-million, sir.

4 MR. MARTEL: In that area?

5 DR. BENDELL: Well, in the jack pine
6 plain flat.

7 MR. MARTEL: Oh, okay, pardon me. I just
8 wanted to --

9 DR. BENDELL: You know, from halfway to
10 Timmins on the north and halfway to Sudbury on the
11 south, and then east and west. That's the heart land
12 of jack pine.

13 MR. LINDGREN: Q. We're now looking at
14 slide No. 6.

15 DR. BENDELL: A. I put this on, just a
16 bit of wildlife cheesecake. This is one of our pets,
17 this is a female spruce grouse, and here she is in that
18 old forest. We have a radio transmitter on her back
19 and this is one of the ways we can find out how the
20 grouse people are doing.

21 Q. No. 7?

22 A. And this is the last main forest type
23 we have there. We have moved off the sand flats now on
24 the way to our field camp and gone up to the more
25 rugged terrain where more water is retained in the

1 broken rock, we're off the deep sand -- flat sands, and
2 here we have once what was I think very good black
3 spruce forest with other conifers as well, now logged
4 back in the 40s and coming back to a fairly old mixed
5 second growth mixed, as I say, natural forest
6 regeneration.

7 Now, this is good for moose, they like --
8 moose like this, it's also good for ruffed grouse which
9 are quite abundant in this type of forest and so on -
10 I can list some other animals - and ruffed grouse of
11 course are not particularly abundant in the jack pine
12 because that's the home of the spruce grouse. And,
13 again, you come back to a kind of habitat and what it
14 produces.

15 And the next step is: Well, we arrange
16 these -- amongst these habitats in the landscape what
17 does that mean then in terms of moose we get and other
18 wildlife and so on, and if we go overboard for moose,
19 what do we lose in other species. I think that's the
20 end.

21 MADAM CHAIR: I counted seven slides.

22 MR. LINDGREN: There are actually seven,
23 Madam Chair.

24 Q. Dr. Bendell, I have a few other
25 questions arising out of your work in Gogama. Can I

1 ask you to turn to page 16 of your witness statement,
2 and on page 16 we have Table 1 which indicates the
3 species and abundance of wildlife in the various
4 habitats near Gogama.

5 Now, based on the information in Table 1,
6 you have concluded that pine plantations were better
7 habitat than spruce and that shrub is of course
8 habitat.

9 During the Panel 9 scoping session the
10 Board posed several questions in relation to that
11 statement.

12 First of all, the Board wanted to know
13 whether you're saying that planting jack pine provides
14 the best wildlife habitat and to that question I would
15 add: Does that mean that we should be establishing
16 jack pine plantations all across Ontario?

17 DR. BENDELL: A. No, I guess what I'm
18 trying to show here, that in this circumstance, which
19 is a very productive area for jack pine, that locally
20 against the other habitat types jack pine has a lot to
21 offer and it shouldn't be ignored or overlooked in
22 prescriptions of forestry for trees alone and for
23 wildlife. That's the idea.

24 I'm quite sure that you could get jack
25 pine -- upland jack pine on very poor sites and one

1 thinks of jack pine there that doesn't have that rich
2 shrubby growth that you saw in the pictures, and I
3 would predict that that would have relatively few
4 wildlife in it, perhaps only the canopy dwellers that
5 can live in the crowns of the trees, you see. So you
6 have to talk about the ecological limits that are
7 involved.

8 Q. So I take it then that you're not
9 advocating the establishment of jack pines across
10 Ontario?

11 A. No, I'm certainly not and I wouldn't
12 do it in terms of the principle of having more variety
13 in the landscape as well.

14 Q. Now, with respect to Table 2 which we
15 find on page 18 of the witness statement, the Board
16 concluded at the scoping session that shrub produce the
17 least hospitable habitat, although Madam Chair pointed
18 out that the Board has not heard much evidence about
19 the habitat value of shrub.

20 Can I ask you, first of all: Do shrubs
21 have any habitat value and should they be retained as
22 part of the landscape?

23 A. Oh, yes. I mean, I think that shrubs
24 are a very important part of the landscape even where
25 they make up the main mass of vegetation, as in this

1 picture, because there you get moose and you'll get
2 shrub dwelling birds and small mammals and other -- and
3 insects and other wildlife in the broader sense that,
4 you know, are adapted to that type of habitat.

5 And then shrubs become equally and
6 perhaps even more important once the trees break
7 through and begin to make a canopy above them, and then
8 again shrubs are very important in the forest, so they
9 certainly have their place.

10 But all I'm doing here is saying that,
11 you know, if you look at just the way it is in terms of
12 these habitats, then compared to what's available in
13 this table, the shrubs are relatively poor.

14 Q. At the Panel 9 scoping session the
15 Board also asked whether one could apply herbicides to
16 shrubs without much concern for the wildlife impacts.
17 Do you have any comments on that?

18 A. Well, following up what I have said,
19 I would predict that if you eliminated shrubs you would
20 eliminate wildlife that were dependent on them.

21 Q. There was an outstanding
22 interrogatory in relation to the information found in
23 Table 1. This is found on page 16.

24 You indicated that one bird species, five
25 mammal species and two amphibian species were found

1 only in the pines, and I'm reading from the last
2 paragraph on page 16. And MNR Interrogatory No. 18
3 asked you to identify the species involved, and have
4 you had an opportunity to do that?

5 A. Well, additional mammals that I
6 haven't mentioned here - and I'll throw in another one
7 in this local circumstance - additional mammals of the
8 least chipmunk or the western chipmunk which likes open
9 burns and shrubby habitats, the meadow jumping mouse
10 and the porcupine in our area was found in this
11 habitat.

12 And then as far as the one bird, that's
13 the Lincoln sparrow, and interestingly the Ministry
14 doesn't mention the Lincoln sparrow as being a boreal
15 wildlife species that, you know, might be part of
16 various habitats in which moose are found.

17 Of course the classic oversight in this
18 description is the fact that jack pines are the
19 exclusive habitat of the Kirkland's warbler which is on
20 our rare and endangered species list and we look very
21 much for Kirkland's warbler and it has been recorded in
22 the area as atransient but has not yet settled down as
23 a green population.

24 We found Kirkland warblers in Petawawa
25 pines, we found Kirkland warblers in jack pines on the

1 north shore of Lake Superior, but not to persist. It's
2 a rare and endangered species in the provincial list.

3 And that brings up an interesting point
4 about our attitude to wildlife management I think, our
5 management is sort of allowing for wildlife, it seems
6 to be a reactive sort of process. I think other people
7 talk about the way our guidelines constrain what's
8 done.

9 I would say here's an excellent example,
10 which is not done to my knowledge, if we're really
11 sincere about Kirkland's warbler and looking after it
12 as an endangered species, we might try some proactive
13 management, do something about deliberately planting
14 jack pines and managing them in order to provide them
15 for the habitat which hopefully would attract them and
16 increase their numbers.

17 So, again, I digress and my view that
18 much of what we talk about is sort of like the top of
19 the issue and then there are all sorts of
20 interconnections.

21 Q. At the scoping session the Board had
22 a question in relation to page 19 of your evidence, and
23 I believe the question related to your statement that
24 pines which are ignored and of little consequence in
25 the landscape for moose are the most valuable wildlife

1 habitat in the Gogama area.

2 And the Board wondered whether you're
3 suggesting that since pine produce the best habitat in
4 that circumstance, is featured species based on moose
5 practical. I'm not sure --

6 A. Well, of course it's not because the
7 featured species approach of using moose as a guide has
8 little use for pine and, therefore, what's done to pine
9 of is of no consequence. But as I tried to point out,
10 there is much in pine and anyone that's managing the
11 landscape in the area not only should be concerned
12 about providing for moose but should be providing what
13 the pines offer as well, and as far as I'm concerned,
14 of course being hung up on spruce grouse, I would say
15 spruce grouse.

16 MADAM CHAIR: Excuse me, Dr. Bendell.
17 Are you saying that moose don't like the young pine
18 plantation?

19 DR. BENDELL: They come into them and eat
20 them, yes they do, the shrubs, they're after the
21 shrubby vegetation and the early growth of the
22 deciduous trees like aspen -- young aspen, Douglas
23 maple is a favorite browse species, cherry and our
24 early forest growth in that area both in the upland and
25 the flats.

1 MADAM CHAIR: So the early successional
2 stages of pine plantations--

3 DR. BENDELL: Yes.

4 MADAM CHAIR: --are in fact attractive
5 for moose?

6 DR. BENDELL: Exactly, yes, because they
7 like the shrubby growth which they feed on.

8 MR. LINDGREN: Q. The Board posed one
9 final question during the scoping session for you, Dr.
10 Bendell; and, that is: What happens to wildlife during
11 timber management activities such as harvesting or site
12 preparation and, in particular, the Board wanted to
13 hear your views as to whether or not wildlife is -- or
14 wildlife is mobile in the sense that it will come back
15 to the disturbed area.

16 Do you have any comments on that?

17 DR. BENDELL: A. Well, again, because
18 wildlife differ, as we talked about before, they react
19 differently and large things like deer and moose they
20 would move away, bear would move away too, but for
21 every animal that moves away it may have gone from the
22 frying pan into the fire and that's particularly true
23 of bear because there's some feeling amongst predators
24 and so on, or certain groups of animals anyhow, that
25 they are spacing themselves and filling all the space

1 in the habitat that they occupy and they're not about
2 to take in immigrants or refugees from a disturbed
3 spot.

4 So while some will move away and
5 presumably find a spot -- open spot to which they can
6 migrate and be a refugee that's been saved, there could
7 be animals like bears that run up against aggressive
8 territorial defenders who won't let them in and they
9 can be chased about and actually killed.

10 Now, that sort of idea can be applied to
11 a whole range of animals and certainly with the small
12 mammals that -- those are displaced, probably in most
13 cases don't face a very bright future. Then, of
14 course, some are killed right on the site and you think
15 of nesting birds and so on in their nests and so on and
16 so forth.

17 So there are a range of possibilities.
18 Some will stay. I mean, some animals have such wide
19 habitat tolerances that they will essentially just
20 adjust their home ranges and where they live and stay
21 right on the spot.

22 MADAM CHAIR: Dr. Bendell, have any
23 studies been done or do you know any information about
24 animal fatality as a result of timber management
25 operations whether it's harvesting or site preparation?

1 DR. BENDELL: You mean direct mortality?

2 MADAM CHAIR: Mm-hmm. We had some
3 evidence a long time ago to the effect that perhaps
4 animals who live underground in caves or whatever are
5 killed.

6 DR. BENDELL: Yes, I would look into that
7 for you because there's a lot of literature on that and
8 I say, yes, there is some direct mortality. Of course,
9 a lot depends on what the operations are like. I mean,
10 timber operations go all the way from horse logging
11 through to huge buncher fellers that are marching over
12 the landscape, so you sort of have to -- and animals
13 that were in burrows could very easily be crushed,
14 say, under one circumstance as compared to another.

15 When fire happens or when the forest
16 cover is removed then immediately ground temperatures
17 go up and animals that are adjusted to moisture and
18 fairly cool conditions are suddenly faced with an
19 entirely different microclimate, so there could be
20 sudden -- very quick, very quick mortality on that
21 account, but that wouldn't be true mostly of the
22 vertebrates because they tend to be more mobile and
23 more resistant to sudden changes and so on. You see
24 what I'm getting at.

25 So you have to begin to try to look at

1 the various possibilities in the circumstance. But I
2 would say by far the greatest effect is this long-term
3 effect of habitat change and the way the forest regrows
4 and this sort, and then what's done with the land to
5 renew the forest.

6 MR. MARTEL: What about the size of the
7 cut, the bigger the cut. Is there a correlation
8 between the size of the cut and what effects there are
9 on the wildlife; in other words, the bigger the cut, is
10 there more devastation to the wildlife?

11 DR. BENDELL: Yeah, I would say just as a
12 quick and simple answer, the bigger the cut the more
13 consequences, the more both negative and positive
14 consequences you would expect from a large cut.

15 And if I get time to develop more of
16 that, I would like to do that because in my history I
17 have witnessed, I've worked on a cut area in a forest
18 fire on a hundred thousand acres on Vancouver Island
19 and this just boggles the mind, to stand on a hill top
20 and look as far as the eye can see and see nothing but
21 blackened stumps and sand, and that though in a few
22 years produced the highest populations of deer and
23 grouse I think has ever been witnessed anywhere, and I
24 think that to talk about: Why did it do that. I think
25 it's just the magnitude of that cut and the nature of

1 that uniform habitat and the adaptations of those deer
2 and grouse, you know, to that particular circumstance
3 which was provided in just a massive amount.

4 Now, they might move out, so that if
5 you're a mad keen grouse hunter and deer hunter you'd
6 probably revel in that, but if you think of the other
7 things that went down the drain as a consequence of
8 that, then that would be a second thought.

9 And then the other thing is that things
10 like that tend to be a boom and a bust, and this
11 remarkable abundance of deer and grouse was very short
12 lived and disappeared.

13 So it seems to me, you know, the moral of
14 that would be, if the cut and the burn had been smaller
15 and there had been more patches of it over the
16 landscape rather than one great concentration, we would
17 have had more of everything for a longer period of
18 time.

19 Well, why did it happen? It's amazing.

20 MR. LINDGREN: Q. Dr. Bendell, can I ask
21 you whether or not all of your concerns about using
22 moose as a featured species, are those concerns based
23 solely on your work in the Gogama area?

24 DR. BENDELL: A. Oh, no. No, I've
25 virtually travelled the western world and I would say

1 it's applied world wide, or western world wide anyway.

2 Q. In your opinion should the Ministry
3 move beyond the featured species approach to the
4 landscape management and planning approach outlined in
5 FFT Panel 9?

6 A. Yes.

7 Q. And very briefly can you state your
8 reasons why?

9 A. Well, again, I think that we want to
10 manage for diversity, we want to manage for variety, we
11 want to manage for distribution, we want to manage for
12 long-term persistence and I think we also want to
13 manage for sustainable use, and I think all of these
14 things come down to this landscape approach.

15 Q. Thank you, Dr. Bendell.

16 MR. LINDGREN: Those are my questions for
17 Dr. Bendell at this time. And if the Board has no
18 further questions of Dr. Bendell I propose to move on
19 to Dr. Middleton, and his evidence is found in Chapter
20 2 of the witness statement commencing at page No. 24.

21 And before we begin, Madam Chair, there
22 are four new exhibits that Dr. Middleton will be
23 speaking to. The first is an extract from an article
24 by Richard Plochmann entitled: The Forest of Central
25 Europe, a Changing View.

1 Now, Madam Chair, a portion of this was
2 already filed as part of Mr. Maser's source book, but
3 the relevant page for Dr. Middleton was not reproduced
4 so we are filing a three-page excerpt at this time.

5 MR. LINDGREN: (handed)

6 MADAM CHAIR: That will be Exhibit 1721.

7 MR. LINDGREN: Thank you.

8 ---EXHIBIT NO. 1721: Three-page excerpt from an
9 article by Richard Plochmann
10 entitled: The Forest of Central
Europe, a Changing View.

11 MR. LINDGREN: The next exhibit, Madam
12 Chair, is a document entitled: Computer Assistance for
13 Route and Site Selection, and it's a two-page photocopy
14 of a pamphlet prepared by Ontario Hydro. It's dated
15 December 3rd, 1989. (handed)

16 MADAM CHAIR: That will be Exhibit 1722.

17 MR. LINDGREN: Thank you.

18 ---EXHIBIT NO. 1722: Two-page photocopy of a pamphlet
19 prepared by Ontario Hydro
20 entitled: Computer Assistance
for Route and Site Selection
dated December 3, 1989.

21 MR. LINDGREN: The next exhibit, Madam
22 Chair, is a 12-page package of the hard copies of the
23 overheads that Dr. Middleton will be using throughout
24 his testimony. (handed)

25 MADAM CHAIR: That will be Exhibit 1723.

1 How many pages?

2 MR. LINDGREN: That's 12 pages.

3 MADAM CHAIR: Thank you.

4 ---EXHIBIT NO. 1723: 12-page package of hard copies of
5 overheads to be used by Dr.
Middleton during oral evidence.

6 MR. LINDGREN: And finally, Dr. Middleton
7 will be referring to that nicely coloured map behind
8 him. That is a GIS forest classification map prepared
9 by Ontario Hydro based on 1987 Landsat imagery and it's
10 at a 1:25,000 scale.

11 MS. BLASTORAH: Sorry, could I have the
12 scale again?

13 MR. LINDGREN: 1:25,000.

14 MADAM CHAIR: And what did Hydro have to
15 do with this, Mr. Lindgren?

16 MR. LINDGREN: Pardon me?

17 MADAM CHAIR: Did you say something about
18 Hydro.

19 MR. LINDGREN: Hydro prepared it.

20 MADAM CHAIR: Thank you.

21 MR. LINDGREN: And Dr. Suffling will be
22 speaking more about this particular map, but Dr.
23 Middleton wanted to refer to it to explain some of his
24 concepts.

25 MADAM CHAIR: That will be Exhibit 1724.

1 MR. LINDGREN: Thank you.

2 ---EXHIBIT NO. 1724: GIS forest classification map
3 prepared by Ontario Hydro based
4 on 1987 Landsat imagery at a
scale of 1:25,000.

5 MR. LINDGREN: Q. Dr. Middleton, I guess
6 I'll put the overhead up for you and perhaps you can
7 commence your testimony by providing the Board with an
8 overview of the main themes of your evidence?

9 DR. MIDDLETON: A. Yes. I'll be
10 addressing three main points over the next few sprints
11 of time.

12 First is that the main effect of timber
13 management activities on wildlife is by way of the
14 effect of these activities on landscape, landscape
15 effect on wildlife.

16 The second point is that the current
17 system for management of timber management activity
18 effects on wildlife is not adequate.

19 And, thirdly, that an alternative method
20 which will be presented having to do with the
21 management of landscape, at least in part, has a number
22 of characteristics. First of all, that it is necessary
23 in order to deal with the effects of TMA on wildlife,
24 that it is feasible with the tools that we have
25 available or can develop in short order, that the

1 proposed system is both more efficient and
2 comprehensive than any alternative which we have
3 available, and I'll try to go as far as saying that the
4 proposal for landscape management that we propose is in
5 a sense inevitable for reasons that I'll try to explain
6 as we go through.

7 Q. Now, Dr. Middleton, throughout your
8 evidence you've referred to the landscape mosaic, and
9 what precisely do you mean by that term?

10 A. Well, it's at the basis of everything
11 that we're going to be talking about for the next
12 little bit, so let me take a moment to go over it.

13 The reason that I asked for this to be
14 put up is just as a reminder of the concept. The
15 easiest way to think of it is to have a mind's eye
16 image of what northern Ontario or any other part of the
17 world looks like from an airplane window or from a
18 satellite image as this is, or from a forest
19 classification map which you've all seen.

20 The main thing that strikes one
21 immediately is that it is not homogeneous, it is a
22 mixture of different kinds and patterns and
23 arrangements of all sorts of different land classes and
24 whether we define these by the type of vegetation that
25 we can see from that distance, their ages, their

1 configurations, topography, water and land, all of
2 these things make up a pattern which is immediately
3 visible and which is amenable to mapping and
4 classification on that scale.

5 That's what I mean by landscape mosaic.

6 Q. And perhaps as we go through your
7 evidence you might go through it a little more slowly
8 so those of us taking notes can in fact take notes.

9 A. Please remind me as we continue.

10 Q. Okay. Well, if I don't, somebody
11 else will. Now, if that's what you mean by the
12 landscape mosaic, what do you mean by the term
13 landscape management?

14 A. Landscape management is taking
15 account of effects that our activities have on this
16 mosaic.

17 Whenever we do anything of any scale of
18 impacts, and forestry is the obvious example here,
19 whenever we as a species do something, we have
20 noticeable measurable effects on the landscape mosaic.

21 A system of landscape management keeps
22 track of these changes that we make to the landscape
23 for a number of reasons. For our purposes today the
24 main reason we keep track of it is because the changes
25 we make to the landscape mosaic directly affect all the

1 species and organisms that live in that mosaic.

2 Q. In your opinion does the MNR's
3 featured species approach involve landscape level
4 management?

5 A. Not explicitly, no. It has some
6 aspects which take into account some limited landscape
7 features, things like the way different types of
8 vegetation are adjacent to each other, but that is more
9 or less incidental, it certainly does not, in my
10 opinion, have the comprehensive view of what we do to a
11 landscape that the program that we're going to be
12 talking about does.

13 Q. Now, I would like to put to you the
14 same question I put to Dr. Bendell this morning and,
15 that is, does the featured species approach have any
16 value at the local level?

17 A. Well, certainly anything that we can
18 do, any information that we have about any species or
19 other can be useful information, so there is nothing
20 unhelpful about information that we get through the
21 featured species approach.

22 And certainly at a local level some of
23 the prescriptions and ideas can be useful if - and this
24 is the big if - if they are kept in context of all of
25 the other effects on the landscape that we have and

1 which we institute incidentally by way of the moose
2 guidelines -- moose habitat guidelines. So, yes, it
3 does have some value.

4 It fits into our scheme in a way that I
5 briefly mentioned this morning. We have a two-level
6 scheme for dealing with landscape effects; we have
7 called them Strategy 1 and Strategy 2. Other people in
8 these hearings have called them wide sieve and narrow
9 sieve or words to that effect.

10 The basic idea is that we have two kinds
11 of information. We have information of the sort that
12 Dr. Bendell has been talking about, information about
13 species, about groups of species, fairly specific, what
14 we could call bottom up kind of information.

15 We have in addition to that kind of
16 information a body of information that we can get at
17 the landscape area level and move down from landscape,
18 top down approach, from those characteristics down to
19 the individual species. What we're proposing is a way
20 for integrating both these types of information.

21 To get back to your question about the
22 featured species approach, it is almost exclusively a
23 bottom up and that is why I say it is not useless
24 information by any means, but it is certainly
25 incomplete unless it is integrated with this broader

1 perspective.

2 Q. Are you or FFT advocating the
3 abolition of the featured species system at the local
4 level?

5 A. I'm certainly not advocating that
6 many of the things that are done for moose at a local
7 level be eliminated. As I say, as long as those are
8 integrated with a broader perspective, broader both in
9 the sense of other species as well as other aspects of
10 the landscape mosaic.

11 It's fine in extra information. I might
12 quibble with the words. If one says that one is
13 moving -- when one is dealing with a featured species
14 approach it has explicit in that the idea that a single
15 species or a small group is enough, and certainly I
16 would not want to accept that aspect of it.

17 So it may be that the label itself, the
18 featured species approach is no longer appropriate but
19 much of the substance of it would remain as part of a
20 larger system.

21 Q. Can I refer you to FFT condition No.
22 27(ii) and that provision says that:

23 "The MNR shall collect and utilize
24 population and habitat data in order to
25 monitor and manage on a sound scientific

1 basis groups of wildlife species with
2 special ecological or socio-economic
3 importance."

4 And it goes on to list examples of groups
5 that could be managed in that manner, and paragraph (c)
6 indicates:

7 "The species that are presently managed
8 by the MNR."

9 Would that provision allow for local
10 moose management or management of other species at the
11 local level?

12 A. Certainly. That's exactly where I
13 would see the present moose understanding of management
14 fitting into our larger scheme.

15 Q. Now, at the beginning of your witness
16 statement you referred to the MNR's expert workshop on
17 other wildlife and you have indicated this morning that
18 you were involved in that process.

19 Can you very briefly explain to the Board
20 what the process entails and can you indicate whether
21 or not this process is advocating the development of a
22 landscape approach?

23 A. Yes. The process, as I understand
24 it, came out of this EA process. It was initiated by
25 the Ministry of Natural Resources to determine what

1 extra research was needed to estimate the effects and
2 ultimately manage the effects of timber management on
3 wildlife.

4 The procedure was -- the procedure for
5 developing this research plan was done with the help of
6 the ESSA consulting company. It involved a series of
7 workshops bringing together people with different
8 perspectives on the field to develop a plan of
9 research.

10 I was invited to participate in this
11 procedure some time last year, I don't have the dates
12 at hand, and along with a large number of other people
13 I participated in two of the major workshops leading to
14 this plan, the plan that has been labeled Exhibit 1714.

15 As for the second part of your question,
16 yes, it is certainly the case that the MNR ESSA
17 procedure to date has come up with proposals for a
18 landscape type management of wildlife in conjunction
19 with the timber management activities.

20 If I can direct you to a number of places
21 in the document I will try to show how I come to that
22 conclusion.

23 Q. And, Dr. Middleton, you're referring
24 to Exhibit 1714?

25 A. That's correct.

1 MADAM CHAIR: Excuse me, Dr. Middleton.
2 Can you repeat why you were at the ESSA workshops.

3 DR. MIDDLETON: Why I personally was at
4 ESSA workshops?

5 MADAM CHAIR: Mm-hmm.

6 DR. MIDDLETON: I was invited to
7 participate at the second step from the beginning. I
8 can't explain why I was chosen amongst other people, I
9 believe it was because of my interest in human impact
10 on landscapes, but I wasn't told that explicitly.

11 MADAM CHAIR: You weren't invited to
12 represent Forests for Tomorrow formally?

13 DR. MIDDLETON: No, no. This was in fact
14 before I had any knowledge of Forests for Tomorrow. I
15 met them at the workshop. My invitation was from the
16 Ministry of Natural Resources.

17 MR. MARTEL: What's happened to this
18 study since before we hear about it?

19 DR. MIDDLETON: The document I'm
20 referring to is dated January 29 of this year. It is
21 the draft for the final report, as I understand, and
22 they are -- it came with a covering letter asking for
23 comments of the participants in the procedure. It's my
24 understanding that a final report incorporating those
25 comments will be submitted in the near future, I don't

1 know the date, but I think within the next couple of
2 months.

3 MR. LINDGREN: Q. And, Dr. Middleton, I
4 believe that you wanted to take the Board through this
5 document and highlight certain items for the Board.

6 DR. MIDDLETON: A. Yes, please.

7 MADAM CHAIR: Dr. Middleton, did you
8 review the first ESSA report?

9 DR. MIDDLETON: I've reviewed all the
10 ones that have come out of the procedure I believe.
11 Can you tell me which ones in specific.

12 MADAM CHAIR: No, that's fine. I just
13 wondered if you would be able to make comment on how
14 this differs from the previous versions.

15 DR. MIDDLETON: I believe I can.

16 MADAM CHAIR: All right, thank you.

17 MR. LINDGREN: And, Madam Chair, as you
18 probably know, the preceding ESSA document dated
19 September 21st, 1990 is included in the supplementary
20 source book.

21 Q. Please proceed, Dr. Middleton.

22 DR. MIDDLETON: A. Thank you. If I
23 could first draw your attention to page Roman numeral
24 (iii) it's just a list of the participants in this
25 procedure, this ESSA procedure. One of the things that

1 struck me as very interesting about it was the degree
2 to which it was a non-confrontational type of workshop,
3 it was very much -- it was closer to an academic
4 university seminar than a group of people fighting for
5 the rights of their group or anything of that sort.

6 And on the list of people that
7 participated there, I think it is worthwhile looking at
8 the great range of addresses that are there, a large
9 number of people from the Ministry of Natural Resources
10 for example, people from industry, from universities, a
11 wide range of different geographical locations, and it
12 was striking that out of this great mix of people the
13 conclusions consistently came out being very, very
14 consistent indeed, certainly from my perspective and
15 also, as I think you'll see, from the perspective of
16 the people that wrote this final report.

17 If we could move to page 1, the
18 introduction, and in the last paragraph it sums up what
19 the report's about to be talking about, and if I can
20 quote from it:

21 "This has in turn led to identification
22 of an integrated landscape classification
23 system which could serve as a common
24 basis for timber and wildlife habitat
25 management as the primary research

1 priority."

2 And I would emphasize the primary
3 research priority in that sentence. Now, just
4 finishing out that paragrah:

5 "Developing and evaluating the
6 feasibility of this approach to joint
7 timber/wildlife planning thus forms the
8 core of the research program outlined in
9 this report."

10 So as I understand those words, the
11 report after this long procedure of consultation has
12 come to the conclusion that a valuating system on the
13 landscape level is the primary thing which needs to be
14 done to integrate timber and wildlife effects with each
15 other.

16 If we could move to page 7, the --

17 MADAM CHAIR: Excuse me, Dr. Middleton.

18 DR. MIDDLETON: Yes.

19 MADAM CHAIR: In the first paragraph they
20 talk about this particular report dealing with wildlife
21 other than moose and deer.

22 DR. MIDDLETON: Yes.

23 MADAM CHAIR: Other seminars will look at
24 moose and deer and fish.

25 DR. MIDDLETON: It was my understanding

1 that this strange looking distinction was made because
2 moose and deer already had large programs involved with
3 them, and I believe also fish, although I'm not so sure
4 about that.

5 MADAM CHAIR: Yes. All right.

6 DR. MIDDLETON: So this was the other
7 category.

8 MADAM CHAIR: Okay.

9 MR. MARTEL: Is it adequate in your -- I
10 mean, if you're looking at just a couple of things, is
11 it adequate to meet the needs out there?

12 DR. MIDDLETON: I think you're looking at
13 everything with the exception of moose and deer.

14 MR. MARTEL: Oh, with the exception of.

15 DR. MIDDLETON: That's right. In my own
16 view it would have been better if we had had a single
17 procedure looking at everything, but if we're dealing,
18 as you'll see, with some tens of thousands of species,
19 losing two to another program doesn't bother me too
20 much. Okay.

21 MR. MARTEL: What bothers you is the make
22 up of the team. You indicate that -- I think I can
23 only see Dr. Quinney's name as one of the very few
24 people, most of them are MNR as I go down the list, Ed
25 Hanna & Associates, but I'm talking about the other

1 stakeholders, there's one Dr. Quinney from the Ontario
2 Federation of Anglers & Hunters, one from the tourist
3 outfitters, and the majority -- well, there's very few
4 of the public represented.

5 DR. MIDDLETON: The direct public,
6 possibly so. I think this was intended as a technical
7 workshop sort of thing.

8 Personally I found the make up
9 encouragingly broad. I had not expected that sort of
10 thing. I had no place in making -- actually I did have
11 a place in making a later list because I suggested some
12 people that might be interesting to it later on and at
13 least two of them were taken up later on. So it's my
14 impression that the organizers were very open to
15 outside influences.

16 I suppose I looked at it as being bit of
17 an outsider myself and it was nice to be in the door
18 first and see a number of other non-Ministry people
19 within it.

20 MADAM CHAIR: Go ahead.

21 DR. MIDDLETON: If I could direct you to
22 page 7 for a moment, just to reiterate the same point,
23 the second isolated paragraph, the one that starts:

24 "The critical need..."

25 "The critical need identified is for

1 a comprehensive ecological landscape
2 classification system which would form
3 the basis for joint timber management
4 /wildlife planning."

5 Again, I'm trying too make the point that
6 this workshop has come very clearly indeed down on the
7 conclusion that a landscape approach is not one
8 interesting thing amongst many that has to be done, but
9 rather the central key to this whole issue of what
10 research we need to do to get these effects understood.

11 And I think I could point out others of
12 the same kind, but that point has probably been made.

13 MR. LINDGREN: Q. There are a number of
14 items in this document that we will return to, Dr.
15 Middleton, but at this point I would like to refer you
16 to page 57 and 59 if I could.

17 Page 57 indicates that the total cost for
18 the research program outlined in the document will cost
19 approximately \$14-million for an eight-year period, and
20 they indicate that resource requirements during years 2
21 to 6 of the program exceed the average annual cost of
22 \$1.75-million and are on the order of \$2- to
23 \$2.3-million.

24 Now, keeping those figures in mind, I
25 would like to refer you to -- well, actually it's page

61 where we see an outline of the deliverables that
produced by this program. There's an indication that:

"The major set of deliverables from the
research program described will be a set
of tools, habitat classification system,
inventory techniques, wildlife habitat
suitability models, models for predicting
the development of landscape units which
support integrated wildlife and timber
management."

And then skipping the next line:

"Successful development of these tools
has the potential to revolutionize the
way in which integrated resource
management planning is conducted in the
province."

And then the paragraph concludes that:

"There are a number of interim
deliverables that will be produced."

And having regard to the ultimate
products of this program, Dr. Middleton, in your
opinion is it a worthwhile endeavour, should we be
spending that kind of money on this sort of program?

A. In my opinion, yes, I think there's
no better way to spend money at the moment to get to

1 the goal that we're all trying to get of integrating
2 timber with wildlife issues.

3 Q. I would like you to put aside this
4 ESSA document for the moment and I would like to return
5 to your witness statement, if I could.

6 MR. MARTEL: Can I just ask a couple of
7 questions. This is an eight-year undertaking?

8 DR. MIDDLETON: The research part is an
9 eight-year undertaking I believe.

10 MR. MARTEL: So anything we do would have
11 to be staged in with respect to moving to this
12 landscape approach. I mean, it's not going to happen
13 like tomorrow?

14 DR. MIDDLETON: The eight-year research
15 program is to fine tune and get a finely tuned high
16 tech instrument at the end of the day.

17 One of the things that has come out, and
18 shows up elsewhere in the document, is that the
19 procedure itself is not all that difficult, certainly
20 not in principle and, in fact, we in our terms and
21 conditions I believe specified within five years to
22 have an interim system up and working and that, in my
23 opinion, is itself a rather conservative.

24 I will, as we talk through this, try to
25 show - and Dr. Suffling even more - the extent to which

1 the tools are available. It's really commitment to a
2 procedure for doing things which is the limiting
3 factor, not technology.

4 MR. MARTEL: But since the final report
5 isn't out, one doesn't know what the government will do
6 with it, but with so many representatives from MNR
7 pushing the process it would seem like it could well be
8 readily acceptable by the Ministry itself.

9 DR. MIDDLETON: I can't speak for the
10 Ministry. I would like to think so.

11 MR. MARTEL: It would seem that if they
12 were spending this kind of money that that's obviously
13 the direction they intend to go.

14 DR. MIDDLETON: I would hope so and, as I
15 say, my impression of how the workshops went was that
16 this was not a case of one side winning its way against
17 another side, but rather that a clear consensus of the
18 logic bubbling up to the surface irrespective of
19 people's starting positions.

20 MR. LINDGREN: Q. If I could, I would
21 like to turn to --

22 MR. MARTEL: I'm just saying, it was an
23 easily negotiable item then, Mr. Lindgren.

24 MR. LINDGREN: One would hope so.

25 Q. Dr. Middleton, if I could, I would

1 like to refer you to your section of the witness
2 statement which deals with wildlife, and we've heard
3 some of Dr. Bendell's views on the definition of
4 wildlife.

5 Can I ask you: What do you understand to
6 be the Ministry's current definition of wildlife?

7 DR. MIDDLETON: A. I think this is one
8 that's changing as we speak, but my understanding was
9 that it was vertebrate animals with a small number of
10 plants and invertebrates that were considered for one
11 reason or other rare, threatened or endangered.

12 Q. In your opinion, is that definition
13 adequate?

14 A. No, it is not in my mind for at least
15 two reasons; ones that Dr. Bendell has talked to this
16 morning already, but just briefly that it's not
17 adequate because it leaves out the great majority - and
18 I speak here literally - the great majority of
19 organisms that live in our forests and this can have
20 implications because of functional reasons of what all
21 these non-considered species have to do with the
22 function of the ecosystems.

23 I won't dwell on this, but I think my own
24 personal primary reason is more on an ethical basis,
25 that if you're going to be intervening so significantly

1 into a landscape the size of northern Ontario that we
2 should at least as a starting point have all of our
3 co-inhabitants on the table, as it were, to begin with.

4 Q. Now, in your witness statement you've
5 indicated that the narrow definition of wildlife covers
6 only about one per cent of all Ontario wildlife
7 species, and that in fact you received an interrogatory
8 on that statement.

9 MR. LINDGREN: And this, Madam Chair, is
10 OFIA Question No. 10 which is found on page 2 of
11 Exhibit 1717A.

12 Q. And, Dr. Middleton, could I ask you
13 to turn to Question No. 10 and can I ask you to briefly
14 describe your statement of why only one per cent of
15 species is covered by the current definition?

16 A. Yes. First of all, let me make it
17 clear that that one per cent was not a rhetorical
18 point, that was intended as a calculation which is what
19 the interrogatory spells out in a bit more detail.

20 I have quoted here figures from standard
21 reference works for the number of species in different
22 groups in Canada. These are not for Ontario, I
23 couldn't find that level of detail to begin with.

24 But making the assumption that the
25 breakdown for Ontario is broadly similar to that for

1 Canada, we can see that there are in comparison to the
2 1800, the vertebrates species, something on the order
3 of a hundred thousand invertebrate species - this is
4 insects and snails and worms and so on - over 3,000
5 species of native vascular plants, and even taking into
6 account those figures, the 70 per cent of the
7 vertebrates accounts for only about 1.2 per cent of
8 that total.

9 And going further and recognizing that
10 this calculation does not take into account whole
11 groups like mosses, fungi, lichens, microorganisms of
12 any kind, I think the one per cent figure is a very
13 conservative one. It's probably less than one per cent
14 of species covered explicitly by the calculation of 70
15 per cent of terrestrial vertebrates.

16 Q. Now, you've heard in my discussion
17 with Dr. Bendell this morning a reference to FFT
18 condition No. 25(i) which defines wildlife as all
19 non-domesticated organisms including plants, animals
20 fungi and microorganisms. Do you support that broader
21 definition?

22 A. Yes, absolutely. I think this is one
23 about which there will soon be no disagreement. It is
24 coming up in almost every major place where such things
25 are discussed these days.

1 Q. And on that point I would like to
2 refer you to Exhibit 1714 on page 3. 1714 is the 1991
3 ESSA Report. And on page 3 under the heading Wildlife
4 we see that:

5 "For the purposes of this exercise
6 the definition of wildlife has been
7 extended to include all species of
8 terrestrial animals, 309 species of
9 vertebrates plus numerous invertebrate
10 species, including soil organisms and
11 plants."

12 And keeping that definition in mind, can
13 I ask you to turn to page 9 -- or page 17 which
14 indicates that:

15 "One of the assumptions for the research
16 plan is that wildlife...", and I'm
17 reading from the bottom of that page,

18 "...wildlife is any living
19 non-domesticated organism."

20 I take it that you would support that
21 definition?

22 A. Absolutely. I mean, the two
23 definitions are a slight bit different, one from the
24 other. I think that reflects the fact that this is a
25 draft and in fact I made that comment in my comments

1 about the draft to the authors. But, yes, that's
2 essentially what I've just been talking about.

3 Q. Does the broader definition of
4 wildlife mean that the MNR must specifically manage for
5 sowbugs and ants and mushrooms and bacteria and
6 everything else that Chris Maser described when he was
7 addressing forest ecosystems?

8 A. No, by no means. It means, in my
9 view, that we must have concern for all of those
10 organisms, but our whole approach of going by way of a
11 landscape management system is predicated on the idea
12 that it's strictly impossible to manage all those
13 species one by one.

14 In many cases we simply don't even know
15 species names for many of those groups, we have only
16 vague estimates of how many species there may turn out
17 to be in Ontario.

18 The sheer physical impossibility,
19 intellectual impossibility and all sorts of other
20 impossibilities of doing that species by species is
21 precisely why we must move to another whole approach
22 for getting at such things.

23 Q. Can I ask you to turn to FFT
24 condition No. 27(iii). This is found on page 25 of the
25 FFT terms and conditions.

1 Now, Dr. Middleton this provision
2 essentially would require the MNR to develop a species
3 vulnerability index, and Mr. Maser during his evidence
4 suggested that such an index should be developed in
5 Ontario and he indicated that that sort of an index
6 could be done for vertebrates, some invertebrates, and
7 some plant species.

8 Do you agree with the development of a
9 species vulnerability index and, if so, does your
10 broader definition of wildlife mean that the MNR must
11 develop a vulnerability index for microorganisms or
12 bacteria?

13 A. I agree with the proposal to have
14 vulnerability indices for some organisms certainly, in
15 fact having that ability is an essential part of the
16 overall two-staged strategy for landscape management.

17 I certainly don't agree, and I'm sure he
18 didn't mean it this way, that every species is going to
19 have its own vulnerability index.

20 I think there would be some value in
21 determining or having some representatives from, say,
22 the fungi, maybe even the bacteria, a few individual
23 vulnerability indices from those groups in coordination
24 with others for the purposes of monitoring the extent
25 to which our landscape management is doing its job.

1 Q. And on this point can I refer you to
2 the September 1990, ESSA Report which is found in the
3 supplementary source book. I believe it's been filed
4 under the author Greig, G-r-e-i-g.

5 MADAM CHAIR: Whereabouts, near the front
6 or...

7 MR. LINDGREN: Halfway.

8 Q. It's entitled: Report of the
9 Workshop to Consider the Effects of Timber Management
10 on Wildlife. And can I ask you to turn -- do you have
11 that document?

12 DR. MIDDLETON: A. Yes, I do. Thank
13 you.

14 Q. Could I ask you to turn to page 147.

15 MS. BLASTORAH: What page was that, Mr.
16 Lindgren.

17 MR. LINDGREN: Page 147.

18 MS. BLASTORAH: Thank you. There's so
19 much paper flipping I can't hear.

20 MR. LINDGREN: Q. And under the heading
21 at the bottom of the page, Dr. Middleton, A Framework
22 for Risk of Effects, there's a statement that:

23 "Regardless of the criteria used to
24 determine viability of a population it,
25 may be feasible to establish a framework

1 for assessing the risk of significant
2 effects of timber management
3 disturbance."

4 And then the document goes on to list
5 three key considerations that will determine risk, the
6 first being geographic distribution of the species, the
7 second being habitat specificity of the species, and
8 the third being the relative abundance of the species.

9 And stopping right there, do you agree
10 with those three considerations, is that what goes into
11 a species risk to timber management activities?

12 DR. MIDDLETON: A. I think those are
13 three criteria which would be useful. I would be
14 reluctant to say that's an exclusive list of facts to
15 take into account.

16 MR. MARTEL: I was just trying to figure
17 out, Mr. Lindgren, where the change or why the change.
18 This is a similar document to this. It's a later
19 version.

20 MR. LINDGREN: That's correct.

21 MR. MARTEL: In the later version, is
22 this not in?

23 MR. LINDGREN: I think the later version
24 does not address all of the issues that have been dealt
25 with in the first ESSA Report and perhaps, Dr.

1 Middleton, you should be giving the evidence here.

2 Q. Do you have any views on the question
3 raised by Mr. Martel?

4 DR. MIDDLETON: A. My understanding is
5 that the earlier report is canvassing a large number of
6 possible approaches to the issue, by the latest reports
7 at January, 1991 the considered opinion of the group
8 had distilled it down to a much clearer focus, which is
9 not to say that all of the information that was
10 discussed in the earlier stages was irrelevant or not
11 useful, it was just determined that when you get down
12 to the knitty-gritty of doing the research plan this is
13 the way to go about it.

14 The issue that Mr. Lindgren is bringing
15 up at the moment is one which was considered, if I read
16 this right, not central to the main thrust in the
17 latest document, but I don't think that's the
18 implication here, that it's taken on its own, rather
19 than part of the larger system.

20 MR. MARTEL: I'm just trying to get Mr.
21 Lindgren's implication of it. He brings this up, you
22 seem to agree with this. I mean, what's the
23 implication for what's now being discussed when there
24 is apparently some agreement on what's going to be
25 presented in the final report.

1 MADAM CHAIR: Dr. Middleton -- excuse me.
2 Dr. Middleton, are you telling the Board that there was
3 something that was dropped or left out in the 1990
4 version that you think is important and you think that
5 it should be addressed somehow.

6 DR. MIDDLETON: No, that wasn't the
7 implication I was trying to make. I'm very happy with
8 the 1991 report --

9 MADAM CHAIR: Then what are we doing in
10 the September, 1990 report?

11 MR. LINDGREN: Well, Madam Chair, perhaps
12 I should be answering that question. Dr. Middleton has
13 just indicated that he supports term and condition 27
14 (iii) which would require the MNR to develop a species
15 vulnerability index.

16 I'm just merely pointing out that is an
17 idea that has been considered and is found to have some
18 usefulness in the 1990 report, and I was just going to
19 ask him to explain the diagram on page 149 to indicate
20 how that can be done, because that's something that FFT
21 feels very strongly about and in fact is endorsing.

22 MR. MARTEL: Well then, to answer Mrs.
23 Koven's question, what you're doing is going back to
24 pick up something that was dropped to move towards --

25 MR. LINDGREN: I mean, I can't answer

1 that question, Mr. Martel.

2 MR. MARTEL: No, but you're asking the
3 question. I mean, the thing has been left out of this
4 document. You're coming back at it in a document
5 that's been revised.

6 I haven't had time to read -- I mean, the
7 document has just come to us, but there's got to be a
8 reason why you're pursuing this line of questioning.
9 I'm just trying to get a handle on what it is you're
10 after?

11 MR. LINDGREN: Well, I think I've just
12 indicated what that is, Mr. Martel, and that is, FFT is
13 strongly in favour of the development of a species
14 vulnerability index and that's been a concept that has
15 been endorsed by Mr. Maser and has been endorsed by Dr.
16 Middleton, and I'm just illustrating how this could be
17 done. This is the only purpose to which I'm referring
18 to this section of the 1990 report.

19 And I would also indicate that Dr.
20 Middleton has indicated that because some things are
21 not mentioned in the subsequent report does not mean
22 they were dumped unceremoniously because they don't
23 have merit or because they're irrelevant or they're not
24 feasible.

25 I believe that's the sum and substance of

1 Dr. Middleton's evidence, and that's the only purpose
2 why I come back to this particular portion of the 1990
3 document.

4 DR. MIDDLETON: If I can try to clarify
5 that by referring to the later document, the 1991
6 document on page 6, right at the bottom, the two
7 paragraphs labeled A and B in italic print, essentially
8 the two strategies that we are proposing, the landscape
9 approach and then the bottom up approach as a
10 supplement to that.

11 My understanding is that in the second
12 one, that is to say, how are wildlife populations
13 affected by timber management practices which are
14 unrelated to changes in vegetation structure, it is
15 within that second category of research that things
16 like the species vulnerability index that we've just
17 been talking about would fit.

18 I don't want to second guess the authors
19 here, but my understanding would be that at this later
20 stage they were trying to get the structure clearer and
21 it would go as part of the detailed research question
22 within that question about how things like the
23 vulnerability index would come up without necessarily
24 repeating the detail that came up in the earlier report
25 when these things hadn't crystallized to that same

1 extent.

2 MR. LINDGREN: This might be an
3 appropriate time for the break, Madam Chair.

4 MADAM CHAIR: It's a good time, Mr.
5 Lindgren. Thank you.

6 ---Recess at 2:45 p.m.

7 ---On resuming at 3:10 p.m.

8 MADAM CHAIR: Please be seated.

9 MR. LINDGREN: Thank you, Madam Chair.

10 Q. Dr. Middleton, could I ask you to
11 turn to your section of the witness statement dealing
12 with rare, threatened and endangered species and this
13 is found at pages 26 to 28 of your evidence.

14 And, first of all, can you advise me
15 whether or not the current MNR definition of wildlife
16 includes the species listed under the Endangered
17 Species Act?

18 DR. MIDDLETON: A. Yes, I believe it
19 does include those species.

20 Q. And using plants as an example, does
21 this -- or does that approach provide adequate
22 protection for all vulnerable, threatened or
23 endangered species in the province?

24 A. No, if that is the exclusive list,
25 it's an excessively narrow definition. It is of the

1 nature of rare, threatened, endangered species that
2 they are the species most difficult to collect
3 information on and the species which appear in the
4 regulations for the Act must go through quite a
5 procedure based on an information base being available.

6 If we use a different standard for what
7 counts as an RTD species as, for example, the reference
8 I give the Atlas of Rare Vascular Plants of Ontario,
9 the number that show up goes up vastly, close to two
10 orders of magnitude, close to a hundred times as many
11 species showing up.

12 Q. And why do you say only six of those
13 species are considered wildlife under the Ministry's
14 current system?

15 A. Well, my understanding was that the
16 featured species approach includes those species that
17 are rare, threatened, endangered even if they're plants
18 or invertebrates and if those six and those categories
19 would show up in the regulations of the Act are
20 included, that's where the number comes from.

21 Q. Now, your evidence entitled: Rare
22 Threatened and Endangered Species, and FFT condition 27
23 speaks of vulnerable, threatened and endangered
24 species. In your opinion, is there a significant
25 difference between rare and vulnerable?

1 A. This is primarily a change in
2 accepted nomenclature for that category. It's based on
3 the change used by the Canadian organization most
4 directly responsible, which is COSEWIC, The Committee
5 on the Status of Endangered Wildlife in Canada which is
6 put together - it's a representative of provincial and
7 federal agencies responsible for these things.

8 They changed the name for some reasons
9 which have some subtle biology in them, but basically
10 it's just a redefinition of the label for the category
11 instead of rare, using vulnerable. For my purposes, I
12 understand them to be identical in this context.

13 Q. And do you support the definitions of
14 vulnerable, threatened and endangered that are found in
15 FFT condition 27?

16 A. Yes, I do. I understand that these
17 come directly from the COSEWIC definitions which are
18 those which are most widely accepted in Canada.

19 Q. And in very general terms can you
20 explain how you propose that the MNR manage the impacts
21 of timber management activities on vulnerable,
22 threatened and endangered species?

23 A. There are, in my estimation, at least
24 two things which should be done to improve the system
25 for dealing with these. One of them is to use a

1 broader definition of what counts as rare,
2 threatened -- or vulnerable, threatened or endangered,
3 instead of using an administrative list, to use the
4 best available scientific information which will always
5 be changing; for example, the Atlas of Rare Vascular
6 Plants of Ontario and other databases of that sort when
7 they are available.

8 The second thing to do, in my estimation,
9 is to recognize that we're going to be operating, in
10 this case especially, with great ignorance in most
11 cases. Precisely because they are vulnerable,
12 threatened or endangered or rare, our ability to have
13 considerable information on them will be significantly
14 reduced and, as a best first attempt to get around that
15 problem, I would advocate doing whatever we can to make
16 sure that the habitat for those species is maintained.
17 And by this I mean having concern for the landscape
18 configuration in which they occur.

19 By doing our best to make sure that we do
20 not change the landscape in any irreversible way as
21 compared to the natural disturbance regime, we have our
22 best first attempt at not accidentally driving to
23 extinction any of the species for which we have limited
24 information.

25 And point out to you that the well-known

1 fact that of all the thousands of species which have
2 been driven to extinction or threatened with extinction
3 in the world today only a tiny proportion of them have
4 that status because of direct persecution by the human
5 species. The vast majority of them have gone extinct
6 or in danger of extinction because their habitat is
7 being degraded, often a ways before we even know the
8 species were there.

9 So the corollary is by taking care of the
10 habitat, the landscape configuration, is our first
11 priority or ought to be for trying to prevent
12 extinction of these species.

13 Q. Thank you. I would like to turn to
14 your evidence dealing with parks and reserves, and we
15 find this on pages 28 to 30 of your witness statement.

16 Now, during the Panel 9 scoping session
17 the Board asked whether or not you thought parks and
18 ANSIs and other reserves provide benefits to wildlife
19 and other resources. And do you have any views on
20 that?

21 A. Yes. I would say that certainly they
22 have the potential to have great importance. I think
23 that the main point to get across here is that the
24 black and white distinction between park and non-park
25 or reserve and non-reserve is a fallacy, it's one that

1 we have to get around. If there's a single thing which
2 has been discovered by modern research conservation
3 planning and adjacent fields, it is that we have to
4 think of a continuum, a continuum of degree of human
5 impact, a continuum of degree of status in law and so
6 on.

7 If we try to do all our conservation
8 within the bounds of pure reserves we are guaranteed to
9 fail, it will simply not work, no feasible series of
10 strict parks and reserves will ever do a whole job.

11 If I can make use of that picture. This
12 is an analogy which is taken from the World
13 Conservation Strategy and the analogy is one of an
14 iceberg, the iceberg of conservation, and the analogy
15 here is that those parts, just like an iceberg, those
16 parts which are most obvious are in fact not
17 necessarily the most important in the overall scheme of
18 things. They make a distinction, which I think is a
19 very useful one, amongst three different parts of the
20 conservation picture.

21 MR. LINDGREN: And, Madam Chair, I can
22 indicate this is page 3 of Exhibit 1723.

23 DR. MIDDLETON: The most obvious and the
24 most intrusive element is things that we can call
25 off-site protection, this could be things like zoos or

1 breeding farms or seed banks or things of that sort,
2 this is part of the whole picture, but it's a
3 relatively minor part of the grand scheme of things
4 even though it's the most obvious one in many ways, the
5 most intrusive one.

6 A second part to the whole set of things
7 is this middle area which is that of parks and
8 reserves, on-site conservation in specifically
9 designated areas, parks, reserves, ANSIs might
10 depending on how they are put into practice fall into
11 this category as well. This is certainly an important
12 part of the whole picture, but it in itself will not be
13 adequate for reasons that we can go into.

14 By far, by far the most important part of
15 the whole picture, but the least obvious one, is what
16 we can call whole landscape conservation, that is,
17 co-existence of wild species with human economy,
18 co-existence of wild species with timber management
19 activities, for example, in the broad landscape, parts
20 of the landscape which don't get specific designation
21 to set it apart from anything else but which are
22 nevertheless crucial if we're going to have long-term
23 survival of the whole range of species as we have
24 defined them.

25 This central concept is at the basis of

1 everything that I'm going to say about reserves. To
2 get back to the specific question about whether ANSIs
3 could contribute to this, my answer is certainly, yes,
4 and the better the system we have for that, the better
5 we will deal with that middle stratem in the iceberg,
6 but it is unfortunate if we think that that will be the
7 end of our job.

8 Q. Do you support the establishment of
9 parks and reserves for the purposes of maintaining
10 biodiversity?

11 A. Absolutely. A good system of parks
12 and reserves, whether official or unofficial, is an
13 essential part of the whole thing.

14 I would also submit that although there
15 are always uncertainties about how much is enough, by
16 most of the evidence, what we have in Ontario is not
17 adequate by the best understanding of international
18 conservation planners and so there's much to be done
19 there with improving the system of parks and reserves
20 that we have.

21 Q. In general terms, what are the
22 factors that will determine whether or not a park or a
23 reserve will be effective in maintaining biodiversity?

24 A. As I alluded to a moment ago, the
25 central fallacy we have to get out of our mind is the

1 idea that a park can be a self-contained thing in terms
2 of the survival of the species that live within it.

3 We know now very well that even the very
4 largest parks in the world are not self-contained
5 ecosystems, they cannot be thought of as something
6 which can just be put aside on their own, quite aside
7 from issues about whether we maintain them, whether we
8 prevent poaching and all that sort of thing, even a
9 perfect large reserve must be considered in the context
10 of the rest of the landscape.

11 A number of reasons for this, ecological
12 reasons, genetic reasons, things having to do with the
13 migration of species on a yearly basis, movement on the
14 scale of centuries. A single example I can give is
15 that if we recognize that most local populations will
16 sooner or later on the scale of centuries fluctuate
17 close to or over the local extinction line, if we
18 have -- if we acknowledge that, then the continued
19 existence of any given species in a park will
20 eventually require re-establishment by migration from
21 another outside reserve or park or population.

22 And it thus becomes just as important to
23 understand how a given park works to understand the
24 context, the wider landscape into which it fits, as it
25 does to understand what happens within the boundaries

1 of that park.

2 Q. Now, Mr. Maser in his evidence before
3 the Board recommended the establishment of an
4 ecologically adequate system of natural areas in which
5 some uses such as logging would not be permitted. Do
6 you agree with that recommendation and, if so, what
7 sorts of management, what type of management would
8 those areas require?

9 A. Again, I think if I understand
10 properly his comment, I would agree with it in
11 principle, again, getting back to the idea that what we
12 have is not black/white, park/non-park sort of thing,
13 but rather a continuum, there is great scope for
14 integrating things such as, oh, some types of forestry,
15 some types of wildlife harvesting, perhaps some types
16 of other economic activities as one of the intermediate
17 stages in this continuua from strict reservation out to
18 completely open landscape.

19 This has the potential to be a very
20 intelligent and useful way of instituting a whole
21 system of things here. So, yes, if that's what he
22 means, I can certainly accept that.

23 As to what kind of management would be
24 required in any given place, I don't think I can give
25 any simple answer.

1 There are a couple of precedents for this
2 sort of thing. One that comes to my mind is the
3 biosphere reserve concept. There are now six of these
4 in Canada. This is a program administered by UNESCO
5 and recently the Niagara escarpment, for example, was
6 designated as an international biosphere reserve.

7 And if you know basically what happens on
8 the Niagara escarpment, it is a system of zoning
9 requirements, greater and greater constraints on what
10 can be done, but it doesn't make the whole thing into a
11 park, it makes the whole thing into an integrated
12 system of interconnected land uses from very strict to
13 almost completely unprotected in the normal sense kind
14 of things with the idea that this will be a more
15 effective way for long-term conservation without going
16 to the ridiculous extreme of saying we're going to put
17 aside 50 per cent of our land area as strict reserve or
18 something of that sort.

19 Q. Now, at page 29 at the top -- or the
20 first full paragraph you indicate that:

21 "Only 6.5 per cent of Ontario's land is
22 included within provincial or federal
23 parks and only 2.2 per cent of Ontario's
24 area is free from logging, mining and
25 sport hunting."

1 And at the scoping session the Board
2 questioned that figure and wondered if the 2.2 per cent
3 figure was in fact referring to parkland. Can you
4 explain your statement and can you explain the source
5 of that figure?

6 A. Yes. When I had the query I went
7 back and looked up where the figures came from. I
8 can't vouch for whether the figures are correct or not,
9 I have no reason to disbelieve the authors, but
10 starting from the figures as given as being correct, I
11 understand this to mean that if you talk about all the
12 provincial parks in Ontario, all the national parks,
13 all the reserves of other kinds, the total of all of
14 those areas that receive some type of protection would
15 be 6.5 per cent of Ontario's land area.

16 Now, in passing it's worth noting that
17 that includes things like Polar Bear Park which is some
18 very large proportion of the total and is outside of
19 the area of this undertaking. So within the area of
20 the undertaking, that figure would almost certainly be
21 a smaller percentage.

22 Of those, if one then does a second
23 calculation and excludes from the list that we've just
24 been using any park in which logging is allowed in any
25 place or hunting, my understanding is that those have

1 been excluded from the total, and if we use only the
2 parks which have within them no logging, no commercial
3 hunting and sport hunting, no mining, the figure drops
4 to 2.2 per cent of Ontario's land area covered by parks
5 of that kind, strict parks of that kind, let's say.

6 MR. MARTEL: I thought there were only
7 two parks I believe in Ontario that were excluded from,
8 Superior -- no, where you were allowed to log, Superior
9 and Algonquin.

10 DR. MIDDLETON: Those two would be a big
11 chunk of course because they're large. If I understand
12 this right, places like Point Pelee National Park, a
13 trivial area I acknowledge, but where hunting is still
14 allowed would also be excluded by the authors of this
15 comparison.

16 MR. LINDGREN: Q. Now, a moment ago you
17 indicated that you would not advocate the setting aside
18 or the establishment of a park that would consistent of
19 50 per cent of the land base for conservation purposes,
20 but having regard for the various percentages that are
21 found on pages 28 and 29, are you recommending that a
22 certain minimum percentage of the Ontario land base be
23 explicitly protected to conserve species and
24 ecosystems?

25 A. Yes. I made the point I think that

1 parks and reserves are not an adequate response to the
2 question of conservation, but I would like to stress
3 that they are certainly a necessary part of the whole
4 thing, that middle level of the iceberg is an essential
5 part that has to be taken care of.

6 Now, whenever one sets minimum figures
7 it's necessary to be clear that they are best
8 considered estimates of those that work in the field
9 and can't be taken too literally, but for what it's
10 worth, the estimates that are most common at the moment
11 are that something in the order of 12 per cent of the
12 land area of a country or an equivalent subarea ought
13 to be set aside in parks and reserves if we want to
14 talk about having an adequate system of parks and
15 reserves which we can then integrate into a larger
16 system of landscape management planning.

17 This is not an unrealistic figure. There
18 are already a number of countries in the world where
19 the figure of area put aside is 10 per cent or higher,
20 including some of the world's poorest countries, so
21 it's not something which is completely unprecedented.

22 The figure for Ontario as we've just been
23 talking about, depending on how you do the
24 calculations, is somewhere between 2 and 6 per cent, so
25 I think there's a large room for improvement there.

1 In my own estimate something on the order
2 of doubling of the area of the province under reserve,
3 park or something of that sort, functioning in that
4 way, would be an appropriate thing to be aiming at.

5 Q. Now, on that point can I refer you to
6 FFT condition No. 32 which is found on page 27 of the
7 FFT terms and conditions, and this particular condition
8 deals with wilderness areas. Do you have condition No.
9 32, Dr. Middleton?

10 A. Yes, I do.

11 MR. LINDGREN: Madam Chair, I can
12 indicate that FFT Panel 10 will provide more details on
13 the wilderness area concept.

14 Q. But, Dr. Middleton, can you explain
15 whether or not there are ecological benefits associated
16 with keeping some wilderness areas roadless?

17 DR. MIDDLETON: A. Yes, I can certainly
18 see that. Again, I'm not an expert in the roadless
19 area concept, but my understanding of it is that it is,
20 in functional terms -- might be in functional terms
21 just another way of allowing for parks or reserves or
22 equivalents of that sort for the least disturbed end of
23 the continuum of parts of the landscape if in fact
24 setting up a roadless area is a more convenient way of
25 reducing the human impact to a low level than, for

1 example, drawing arbitrary lines on a map and Gazetting
2 it as a provincial park. The method used doesn't
3 concern me too much, and I can certainly see benefits
4 for doing it in this way.

5 Q. Can I ask you to turn to subparagraph
6 (g) of condition 32 and this is found on page 29.

7 A. That was (d)?

8 Q. (g).

9 A. (g). Thank you.

10 Q. This is the last provision in that
11 condition, and paragraph (g) would require the MNR to
12 ensure that at least 12 per cent of the land of each
13 management unit shall remain roadless.

14 And keeping in mind some of these figures
15 that you've just described, is 12 per cent generally
16 consistent with what you would propose?

17 A. Yes, that 12 per cent I assume is --
18 well, it's the same figure as the one I quoted earlier
19 that came from the Brundtland Commission Report on the
20 minimum area that should be included within a system of
21 adequate parks and reserves.

22 If I understand this correctly, this is
23 reclassifying the landscape in such a way that the 12
24 per cent is defined in other terms but would include
25 within it what we now call parks and reserves, perhaps

1 excluding some of the more built up areas of them. So,
2 yes, I agree with it.

3 Q. I would like to turn to the next
4 section of your evidence which is found on page 30 of
5 your witness statement, it's entitled: What's Wrong
6 with the Present System.

7 Now, this morning Dr. Bendell has
8 outlined his concerns about using moose as a
9 provincially featured species. Do you have similar
10 concerns and, if so, can you summarize them briefly for
11 the Board?

12 A. Yes. I'll do it just briefly because
13 I'm sure that this has been heard many times before.
14 These are essentially the same things that Dr. Bendell
15 went over this morning, the only difference being that,
16 again, Dr. Bendell is taking one perspective from the
17 species level up, I'm taking the complementary
18 perspective from the ecosystem down.

19 Just to summarize what my concerns would
20 be about the featured species approach, keeping in mind
21 that this is not to say it should be eliminated
22 entirely but rather incorporated into a larger
23 perspective. The first one, that it's an incidental
24 approach and there has been much testimony so far that
25 it was not designed as a tool for management of

1 wildlife species. Its benefits to that end are
2 incidental to its main purpose for other purposes,
3 which means that it's unlikely to be as responsive as
4 we would want it to be into the future.

5 The second point I've already made, that
6 even if taken at full face value for the claims that
7 are made for it it is dealing with one per cent or less
8 of all the species that are out there, at least that it
9 has taken into exclusion consideration less than one per
10 cent of the species that are out there.

11 The next two points, that it's biased in
12 two different ways. I mean biased here not in a
13 pejorative sense but in a statistical sense that it
14 gives a systematically displaced answer to the question
15 about whether we're having significant effects because
16 of timber management activities.

17 It's biased because of the organisms that
18 it looks at. I used the analogy in the witness
19 statement that using moose to gauge whether timber
20 management activities are having a significant effect
21 is like using pigeons to gauge whether urbanization has
22 a significant effect on wildlife.

23 It's not that I've got anything against
24 pigeons or moose, they're good people all of them, but
25 they are species of a particular kind, they are species

1 which benefit from the disturbance under question.
2 There's been a lot of evidence given that moose
3 generally increase in response to timber management
4 activity, just as pigeons increase in response to
5 urbanization, and there's nothing wrong with that, as I
6 say, but if we make the logical leap to saying,
7 therefore, the rest of the species or some significant
8 proportion of them are also doing well, that is a leap
9 of flawed logic in my view.

10 It is biased in the sense that the
11 species which are going to fall foul of that leap of
12 logic are precisely the ones that we are most concerned
13 about, that is to say, those species which are most
14 sensitive to the disturbance at hand. Obviously if we
15 are trying to use species to determine the impact of
16 something and whether it's significant or not, we want
17 to ask those species, those indicators or whatever that
18 are sensitive to it, not the ones that are specifically
19 insensitive or less sensitive or even benefitted by the
20 disturbance at hand.

21 So it's biased in terms of the kinds of
22 species that we're using. Biased in the second related
23 but somewhat different sense, again, taking up an
24 ecosystem perspective here, because the types -- parts
25 of the landscape which are most significant for the

1 moose are not the parts which are often of most concern
2 to those who are looking at conservation. As Dr.
3 Bendell pointed out this morning, the correlation of
4 the parts of the landscape liked by moose or needed by
5 moose and parts of the landscape of concern to
6 conservationists is not all that great.

7 Take the issue of old growth forest for
8 example. The moose habitat guidelines tend to not give
9 much protection to old growth parts of a landscape, in
10 fact depending on how they're interpreted, it might
11 even be said that they are inimicable to that part of
12 the landscape. That obviously would not be
13 satisfactory to somebody concerned about a whole range
14 of things out there, even less so to people that are
15 concerned about what might be perceived as particularly
16 vulnerable parts such as the old growth parts of the
17 landscape.

18 And the final comment - again, these are
19 nothing new - that the -- I am concerned about the
20 featured species approach because it's not an ecosystem
21 approach, it is a species by species approach, bottom
22 up in the terminology we've been using, and I think
23 this increasingly is found to be a flawed approach
24 whenever we deal with human impacts on the natural
25 world, it leaves out the consideration -- leaves out an

1 explicit consideration anyway of the interactive
2 effects, the larger scale effects, many of the things
3 which are certainly, in our view, important to take
4 into account.

5 So just a summary of what some of our
6 concerns, some of my concerns in particular are about
7 the featured species approach.

8 Q. In your opinion, Dr. Middleton, could
9 the enhancement of moose habitat through timber
10 management activity contribute to biodiversity?

11 A. It could in some circumstances. I'm
12 sure it does in some circumstances, but I cannot accept
13 the statement that it does in all circumstances, which
14 I think is more central to how the featured species
15 approach is normally expressed.

16 I can think of individual circumstances -
17 and, again, Dr. Bendell had more detail of this - I can
18 think of individual circumstances where the effect
19 might be in either direction or neutral in other cases
20 as a tool for improving, for diminishing the effect of
21 timber management activities on wildlife. I do not
22 have confidence in it as being universally and
23 directionally what we want for even a majority of the
24 time.

25 Q. You've indicated a few moments ago

1 that the moose habitat guidelines might not adequately
2 deal with some components of the landscape mosaic such
3 as old growth. In your opinion, can landscape
4 management deal with all the components of the mosaic?

5 A. Yes, in fact that is its starting
6 point, that it sets out as its first principles to
7 track all elements of what are out in the landscape,
8 all parts of it, all types of it. That's central to
9 the whole logic of it, so certainly it does.

10 Q. Now, earlier in this hearing wildlife
11 management has been described as a continuum with
12 featured species at a certain point and indicator
13 species at a certain point beyond that and guild
14 management somewhere beyond that on the continuum, in
15 terms of the complexity and sophistication that is
16 required.

17 First of all, can I ask you: Do you have
18 any comment on this so-called continuum of wildlife
19 management?

20 A. Well, there is certainly a continuum
21 there and I think the continuum that has been
22 identified is one from a few species to -- from one
23 species ideally to a few species, to many species and
24 that's being equated with simplistic, to a little bit
25 more complicated, to a very sophisticated and in turn

1 the same continuum from relatively easy, to more
2 difficult, to almost impossible.

3 I won't agree with more than the first
4 one; that is to say, it is not obvious to me at all
5 that simply taking into account more species makes your
6 system more sophisticated. I think this is really the
7 last point that I made up here, that this is stuck in
8 the view, the bottom up view that species by species
9 way of doing things is the way to go. If you accept
10 that that is the only way to go, then there is a
11 certain logic to that.

12 I would suggest as an alternative that
13 there are axes, continuums at right angles, if you
14 wish, to this one; that the continuum from simplistic
15 to sophisticated is not parallel but at right angles to
16 that one; that is to say, one can have completely other
17 ways of approaching it, specifically an ecosystem
18 approach, not a species by species approach, which is
19 at the same time simpler to do but also more
20 sophisticated.

21 So that the face value continua and the
22 way that they relate to each other, I certainly do not
23 accept.

24 Q. Now, you've indicated this morning
25 that landscape management does not explicitly consider

1 specific species, and if that's the cases where, if at
2 all, does landscape management fit on the continuum
3 that I've described to you?

4 A. Well, as I was just trying to point
5 out, I don't think it fits on that continuum at all,
6 that one directional continuum is too narrow to
7 adequately describe the problem that we all face.

8 I wanted to emphasize that looking at
9 individual species or groups of species will have a
10 place within the larger system - getting back to our
11 two-level strategy here - Strategy A which is getting
12 the landscape level correct as our first priority, but
13 supplementing that with some information about
14 individual species, that will always be necessary, and
15 so it's not correct to say that individual species
16 information will somehow become obsolete or be deleted
17 from our files or anything of that sort.

18 It's just that it will be considered in a
19 larger context, it will be considered not in the
20 context with that one dimensional continuum, but at the
21 richer two dimensional or more dimensional field that
22 we've just been describing.

23 Q. I would like to ask you a couple of
24 questions about FFT's overall wildlife objectives, and
25 to that end I would like to ask you to turn to

1 condition No. 25 which is found on page 20 of the FFT
2 terms and conditions.

3 First of all, can I direct your attention
4 to 25 sub (ii) which indicates that:

5 "The MNR should ensure that timber
6 management activities do not reduce,
7 eliminate or otherwise adversely affect
8 the existing and potential future level
9 of biological diversity within the area
10 of the undertaking or any forest
11 management unit's ecodistricts or
12 ecosections therein."

13 And then the provision goes on to say
14 that:

15 "The MNR should ensure that biological
16 diversity is maintained by providing an
17 ecologically sound abundance and
18 distribution of wildlife communities and
19 species at the provincial level and
20 within forest management unit's
21 ecodistricts and ecosections."

22 Do you support that term and condition?

23 A. Yes, I do. My understanding of it is
24 that it is not a particularly radical one, the words
25 might be different, but it's essentially the same one

1 as the Ministry has put forward as its goal to
2 maintain -- to ensure that the timber management
3 activities do not cause irreversible changes to
4 wildlife as defined by our broader definition. So,
5 yes, I support it.

6 Q. And condition 25 sub (iii) states
7 that:

8 "The MNR should ensure no wildlife
9 populations decline in the long term at
10 the provincial level or within forest
11 management unit's ecodistricts or
12 ecosections as a direct or indirect
13 result of timber management activities
14 within the area of the undertaking."

15 Do you support that condition?

16 A. Yes, I do. And I acknowledge that
17 this is something of an elaboration on the previous one
18 to get across the idea again Dr. Bendell brought up
19 this morning, that a plan that would allow
20 province-wide figures to be maintained while
21 considerable chunks of the province lose species
22 entirely, would be considered less than acceptable by
23 our view of things.

24 Q. Now, Dr. Suffling will be providing
25 more information on what is meant by the terms

1 ecodistrict and ecosection but, Dr. Middleton, can I
2 ask you whether or not, in your opinion, should
3 management unit boundaries be redrawn so as to conform
4 with ecological integrity?

5 A. I think they should be redrawn to
6 reflect the background, for all our sakes it will just
7 make the task a lot easier. The logic here is that if
8 we take seriously the idea that timber management
9 activities are to mimic to the greatest extent possible
10 the natural disturbance regime, then it makes our job
11 easier for everybody from managers to all parties
12 involved if our management goals, our management
13 actions are consistent with logical ecological
14 boundaries.

15 This is not bringing in any element of
16 greater substance to it, it just makes the job easier,
17 it tries to eliminate to the extent possible
18 administrative fictions getting in the road of the job
19 that we are all trying to do.

20 Q. Do you support condition No. 25 (iv)
21 in the FFT terms and conditions?

22 A. Yes, I do. The five-year time span
23 that was alluded to earlier by Mr. Martel, the time it
24 will take to do this. It is my understanding from all
25 parts of this process that I've been involved with,

1 including the ESSA parts, that this is not a
2 particularly onerous task to take on.

3 I know that redoing an administrative
4 bureaucracy is amongst the more difficult tasks that we
5 have to do in the world, but it is nevertheless
6 something that can be done certainly within the
7 five-year period and, again, stressing that this is
8 not -- this is to make everyone's job easier, it's not
9 an arbitrary thing, but something which the logic of
10 which, I would have thought, clear to most people
11 involved.

12 Q. In your opinion, should wildlife
13 management units conform with the new management
14 boundaries that are being called for in condition
15 25(iv)?

16 A. Absolutely. The whole thrust of this
17 way of looking at things is that one does not manage
18 for one thing at a time, one manages a landscape as a
19 whole taking into account all of the different values
20 within it, be they timber, wildlife or anything else.

21 And certainly it would be inconsistent if
22 we did not strongly support the idea that the
23 boundaries for each type of management should coincide
24 with each other. It would be very much more difficult
25 if they did not do so.

1 Q. Now, on page 33 towards the bottom we
2 find a description of Strategy 1 and Strategy 2, and
3 you briefly described those strategies this morning.
4 Does Strategy 1 correspond with FFT condition No. 26?

5 MADAM CHAIR: Is that on page 41; did you
6 say, Mr. Lindgren?

7 MR. LINDGREN: This is at page 33 of the
8 witness statement.

9 MADAM CHAIR: Thank you.

10 DR. MIDDLETON: Yes, they coincide to the
11 extent that the terms and conditions go further of
12 course in terms of details of implementation, but they
13 are all implementation of that first strategy.

14 MR. LINDGREN: Q. And is Strategy 2
15 reflected in condition No. 27?

16 A. Yes, that's correct.

17 Q. And can I ask you whether or not
18 those two strategies -- are those two strategies
19 consistent with the strategies outlined in the January,
20 1991 ESSA Report?

21 A. Yes, I believe there's a very close
22 fit between those two and what are described in the
23 ESSA Report as their A and B categories on page 6 of
24 Exhibit 1714.

25 Q. And can I ask you to turn to page 18

1 of that document.

2 A. Of the ESSA document?

3 Q. That's correct.

4 MADAM CHAIR: Page 18, Mr. Lindgren?

5 MR. LINDGREN: Yes, Madam Chair.

6 Q. And there under the heading Overall
7 Direction and Priorities we see a description of the
8 four highest priorities in terms of wildlife and
9 landscape research. Do you agree with those four
10 priorities?

11 DR. MIDDLETON: A. Yes, I do. And I
12 think if you look at them carefully, No. 1 corresponds
13 to our Strategy 1 or their first level of things; that
14 is to say, above all, get the landscape level stuff
15 down first as the first priority.

16 Nos. 2, 3 and 4 in that list are all
17 dealing with the second priority, the setting strategy
18 in our jargon; which is to say, after we have done
19 that, go further to see which species are not
20 adequately dealt with with that first one and deal with
21 those, but especially in Nos. 3, 4 noticing the
22 highlighted sections, in the context of landscape
23 classification system.

24 So it's not a separate task but very
25 explicitly in the context of the primary thing which is

1 the landscape planning and management perspective
2 described in No. 1.

3 Q. Is monitoring an important part of
4 both strategies?

5 A. It's absolutely essential and here I
6 would refer back to things that the Board has heard
7 thoroughly throughout the procedures, in particular the
8 testimony of Dr. Baskerville for example, the idea of
9 adaptive management - which is not the same as this, it
10 is a different overlapping concept - but it is, in my
11 view and that of most others in the procedure,
12 absolutely essential that one has ways of monitoring
13 what one's actions actually are doing and acknowledging
14 right from the beginning that the first plans will not
15 be perfect in your implementation, instead of shrugging
16 one's shoulders and saying: Well, we didn't have that
17 quite right, to make the necessary adjustments as one
18 goes along. One cannot do that unless there are
19 explicit measurable quantitative ways for determining
20 where you are, where you want to be and how to get from
21 the one to the other.

22 So I can't stress too strongly that this
23 idea of adaptive management fits in as a starting point
24 for this whole idea of landscape scale management that
25 we're talking about.

1 Q. Now, on the issue of monitoring, can
2 I ask you to turn to condition No. 39(iii) which is
3 found on page 34 of the FFT terms and conditions, and
4 condition 39(iii) essentially states that:

5 "In order to monitor the effects of
6 timber management on wildlife species,
7 each approved timber management plan
8 shall contain a description of a
9 monitoring program for the following
10 species."

11 And it lists:

12 "Vulnerable, threatened or endangered
13 species, species with special habitat
14 needs, game species and furbearers,
15 non-game species of special interest, and
16 species whose populations are likely to
17 indicate the effects of timber management
18 on water quality."

19 Do you support that condition, and can
20 you indicate why it might be important to monitor the
21 impact of individual timber management plans on local
22 wildlife populations?

23 A. I would certainly support this to the
24 extent that these are all good criteria for determining
25 which monitored species should be put into place.

1 Again, I wouldn't want to commit myself to saying that
2 this is an exhaustive list of the criteria which should
3 be taken into account.

4 This is essentially the same issue that
5 has been dealt with on page 18 of the ESSA document,
6 those second, third and fourth criteria, where it says
7 identify which species or groups of species need the
8 special attention; that is, that are not thoroughly
9 taken care of with the landscape perspective and doing
10 something about them. These are the criteria for doing
11 that.

12 And that is equally the case whether
13 we're talking about the province as a whole or any
14 smaller unit as far down as we care to go in the
15 spacial hierarchy.

16 As I pointed out a moment ago, we don't
17 consider it adequate that a single measure for all of
18 Ontario be the final line. It follows then that for
19 any smaller area where we want certain conditions to be
20 fulfilled, we must have for each of them the same tools
21 for monitoring and adaptive management that we have for
22 the larger units, and that's why these things are
23 critical for the smaller units as well.

24 Q. And when we're talking about
25 monitoring wildlife species, are you talking about

1 monitoring individual species or groups of species or
2 both or what?

3 A. I wouldn't want to say at the moment.
4 I can imagine it being done in different ways. I
5 should point out that a large section of the ESSA
6 Report which is, you'll remember, a plan for research
7 for the future used to determine exactly that question,
8 what is the most profitable, feasible way of doing that
9 second stage in the procedure, and stressing once again
10 that these decisions cannot be made until that first
11 decision is made; that is, which system of landscape
12 scale management -- into which system of landscape
13 management all of this is going to fit. You cannot do
14 it in isolation. If you try to do it in isolation, all
15 we'll have is yet another pile of species-specific data
16 which don't help us in our job.

17 MR. LINDGREN: Madam Chair, this might be
18 a logical spot to break for the day. I can indicate
19 that there's a very strong likelihood we'll be finished
20 by the mid-afternoon break tomorrow, so perhaps Mr.
21 Hanna should be contacted and advised that he might be
22 called upon.

23 MADAM CHAIR: Dr. Quinney?

24 DR. QUINNEY: No problem, Madam Chair.

25 MADAM CHAIR: Thank you.

1 All right, we'll be back at nine o'clock
2 tomorrow morning.

3 MR. LINDGREN: Thank you.

4 ---Whereupon the hearing was adjourned at 4:10 p.m., to
5 be reconvened on Tuesday, February 19th, 1991,
6 commencing at 9:00 a.m.

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